ICF CONSULTING

US 2, Havre to Fort Belknap EIS

Existing Economic Conditions Report

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Prepared for:

Montana Department of Transportation

Prepared by:

ICF Consulting
9300 Lee Highway
Fairfax, Virginia 22031
Tel 703-934-3000

Principal report authors:

Sergio Ostria, M.A., Economics, The George Washington University

Jeffrey Ang-Olson, Master of City Planning, Master of Transportation Engineering, University of California, Berkeley

Sakina Khan, Master of City Planning, Massachusetts Institute of Technology

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EXECUTIVE SUMMARY

This report is an assessment of the existing economic baseline conditions for the US 2, Havre to Fort Belknap environmental impact statement (EIS). Economic impact is one of the many topic areas of analysis in an EIS. The analysis of economic impacts is a two-step process:

1) Identify the existing economic baseline conditions; and
2) Assess economic impacts of the alternatives by comparing alternatives to the baseline.

This report addresses the first step in the economic analysis. Specifically, this report describes existing economic conditions in the study area, identifies current and past economic development initiatives in the study area, and evaluates the potential to promote economic development in the study area through improvements to the US 2 study segment. The conclusions reached in this report are based on analysis of the regional economy according to accepted methods, and supplemented by new approaches to assessing the links between economic development and transportation investments.

The next step in the economic impact assessment will be to compare the economic impacts of the various alternatives. One of the tools used for this comparison will be a benefit-cost analysis. The benefit-cost analysis typically compares project costs to the user benefits of transportation investments. Such analysis allows for comparison across project alternatives by expressing each in terms of a benefit-cost ratio – the dollar benefits per dollar unit cost.

The economic analysis, including the benefit-cost analysis, is one of many elements that will be considered in evaluating the alternatives for improvements to US 2. The impacts and benefits of the various alternatives, including findings from the benefit-cost analysis, will be summarized in the draft and final EIS documents.

Background and Methodology

A review of other studies of the economic effects of highway investments finds substantial disagreement as to the extent and nature of regional economic impacts. Some studies have found that highway investments can create broad economic growth and development along highway routes.[1] But many other studies have found that highway investments alone will not ensure economic development, absent other necessary factors including availability of competitively priced land, labor, capital, and supporting infrastructure.[2] Other studies have concluded that highway access has become less important as a business location factor over time and that other factors, such as the quality and cost of labor, are likely to play larger roles in business location decisions compared to transportation access.[3]

[1] See for example, *Appalachia,* "Appalachian Highways are Catalysts of Change," Vol. 15, Nos. 2/3, pp. 8-17, 1982; also Wilbur Smith Associates, "Appalachian Development Highways Economic Impact Studies," Prepared for the Appalachian Regional Commission, 1998.
[2] See for example, Forkenbrock, David J, Thomas Pogue, David Finnegan, and Norman Foster, "Transportation Investment to Promote Economic Development" in *Infrastructure Investment and Economic Development: Rural Strategies for the 1990s*. December 1990; also Harris, Curtis C., "New Developments and Extensions of the Multiregional, Multi-Industry Forecasting Model," *Journal of the Regional Science,* Vol. 20, No. 2, pp 159-71, 1980; also Aldrich, Lorna and Lorin Kusmin, "Rural Economic Development: What Makes Rural Communities Grow?" *Agriculture Information Bulletin*. U.S. Department of Agriculture, Economic Research Service, Bulletin No. 737, September 1997.
[3] Study by Wilbur Smith Associates noted in Forkenbrock, David J and Norman Foster, "Highways and Business Location Decisions," *Economic Development Quarterly.* Vol. 10, No. 3, pp 239-48, 1996.

Assessing the economic effects of highway investments such as that proposed for US 2 is challenging. We apply an approach that asks the question: "what is the economic development strategy for the region and how reliant is the strategy's success on improvements to the transportation system?" Through numerous interviews and a site visit, we first identify the economic growth initiatives for the study area and consider how each relies on the transportation system. Then we assess qualitatively the relationship between the initiatives and major capacity improvements to the US 2 segment. We also assess other types of roadway improvements that can foster continued economic vitality and economic development in the study area. As part of a subsequent analysis (not documented in this report), the economic impacts of transportation alternatives will be assessed using a conventional benefit-cost analysis model.

Socio-Economic Conditions

The project segment is located in north-central Montana, approximately 30 miles south of the Canadian border and spanning portions of Hill County, Blaine County, and the Fort Belknap Indian Reservation. The segment is part of the "Hi-Line" in Montana, a string of farm and ranch communities stretching 666 miles across northern Montana along US 2. The principal communities along the study segment are Havre (at the western edge, population 9,261), Chinook (population 1,386), Harlem (population 848), and Fort Belknap (at the eastern edge, population 1,262). Agriculture remains the area's economic mainstay, particularly wheat growing and cattle ranching.

Much of the study area has experienced long-term population loss, a trend shared by all of the eastern plains counties of Montana. However, population loss in the study area has been partially offset by a 21 percent population increase on the Fort Belknap Reservation (Blaine County portion) since 1990. Residents in the study area are predominantly white (72 percent) and Native American (25 percent).

The largest employment sources in the study area are the retail, services, government, and farming sectors. The BNSF Railroad is an important source of employment particularly in Havre. Less than two percent of all study-area employment is in manufacturing businesses. The 2001 unemployment rates in Hill County and Blaine County are 4.1 percent and 5.6 percent respectively, compared to the Montana average of 4.6 percent. Unemployment on the Fort Belknap Reservation is reported by the BIA Labor Force Report to be 71 percent.

Identification of the basic industries (industries that export or sell their goods and services to consumers outside the study area) confirms that the study area is heavily dependent on agriculture for earnings. Other basic industries in Hill County include railroad transportation (BNSF), communications, oil and gas extraction, and social services. Blaine County has a heavy concentration in the federal civilian government sector, but few private sector basic industries.

A review of economic data suggests a spatial hierarchy of study area communities. Blaine County has relatively few specialized establishments and a low concentration of service sector businesses. Hill County appears to provide some of these services for Blaine County (such as real estate, health services, and social services) while others (such as business services and insurance agents and brokers) must be obtained in more distant locations like Great Falls. The existence of this trade center hierarchy demonstrates the role of US 2 in providing access to goods and services for study area residents.

Transportation Characteristics

US 2 is the most important east-west highway in northern Montana. Within the study area it links the communities of Havre, Lohman, Chinook, Zurich, and Fort Belknap, and runs just south of Harlem. The nearest Interstate access is at the I-15/US 2 junction near Shelby, approximately 100 miles west of Havre. A number of two-lane paved roads and unpaved roads intersect US 2 in the study area.

A major BNSF rail line runs parallel to US 2 through the study area, carrying heavy train traffic and Amtrak passenger service. This line is the primary rail facility linking Pacific Northwest ports such as Seattle and Portland with Midwestern population centers. Most grain grown in the study area is transported out of Montana by this rail line. To maximize operational efficiency, BNSF has recently been consolidating grain terminals at facilities that can handle longer trains. This consolidation may result in longer highway trips for farmers hauling grain to elevators.

A review of Census journey to work data suggests that a small but significant amount of commuting occurs between study area communities, particularly for residents of Blaine County. One-third of workers living in Chinook are employed outside the town, and 15 percent of Chinook workers leave Blaine County to reach work. It is assumed that most drive to jobs in Havre. Nearly 60 percent of workers living in Fort Belknap leave that town for jobs, although a much smaller fraction (seven percent) leave the county for work.

Economic Growth and Transportation Linkages

We reviewed both current initiatives and past failed initiatives, grouped into six broad sectors: tourism, agriculture, manufacturing, energy, retail/service, and public sector. We also consider some of the factors that might influence diversion of traffic to the study segment.

Tourism

Hill and Blaine Counties and the Fort Belknap Indian Reservation contain a number of historical, cultural, and natural resource attractions. In addition, the proximity of Glacier National Park to the west on US 2 means that the study area experiences relatively high volumes of pass-through tourism traffic, particularly during the summer months. Less than four percent of pass-through travelers are estimated to visit the study area tourist attractions. Growth of the tourism sector appears particularly promising if coupled with development and promotion of attractions such as Bear Paw Battlefield, the Bison Indian Burial Archaeological Site (Wahkpa Chu'gn), Fort Assiniboine, and attractions on the Fort Belknap Indian Reservation. There is also potential for the Lewis and Clark Bicentennial Celebration to generate long-term awareness of the area's attractions and lead to a sustained increase in visitation and associated spending.

The tourism industry relies on a transportation network that provides accessibility and safe levels of service to travelers. The study area road network – US 2 and its feeder roads – are critical elements supporting the flow of tourists to the area's attractions as well as to other regional destinations. Level of Service is a qualitative measure of the relationship between the volume of traffic on a highway facility and the capacity of that facility. This measure ranges from high levels of service such as free-flow conditions to low levels where travel demand equals or exceeds the capacity of the facility and gridlock occurs. Given the fairly high level of service on US 2[4], it does not appear that major capacity improvements to the US 2 segment, such as additional through travel lanes, would lead to significant growth in the local tourism sector at this time. However, other improvements (such as better signage, turning lanes, and safety improvements) that can improve visitor information and access to visitor services and attractions can help to support tourism activity in the study region, with concomitant economic benefits.

[4] David Evans and Associates, Inc., *Preliminary Traffic Engineering and Geometrics Report: US 2, Havre to Fort Belknap*. December 20, 2002.

Agriculture

The Hi-Line region relies heavily on agriculture as a source of employment and income, particularly wheat and cattle. Virtually all grain grown in the study area is transported by truck from the field to grain elevators on the BNSF rail line, and then by rail out of Montana. The recent consolidation of grain elevators appears to have increased grain truck traffic on US 2. Cattle are transported exclusively by truck to out-of-state finishing lots where they are fattened for slaughter. Opportunities for economic growth in the agricultural sector lie primarily with higher value crops and livestock, such as organic wheat.

A number of external factors affect the profitability of farming and ranching, including rainfall and commodity prices. A rise in transport costs can also affect profitability, although transport costs in the study area are driven primarily by shipping distance. Given the distance to markets faced by producers in the area and the relatively high level of service on US 2, it is unlikely that major capacity improvements to US 2 would significantly affect the economic outlook for farming and ranching in the study area. Other US 2 improvements appear to be in order to address some of the reported safety and operational problems for the agriculture sector and to help to ensure the sector's long-term economic viability.

Manufacturing

There is little manufacturing in the study area, but several manufacturing businesses and initiatives offer potential for growth. A proposed biodiesel production facility would create 20 new high-paying jobs (possibly in Havre) and boost local demand for oil seed crops. A small but successful Havre firm that reconditions farm equipment has potential for expansion. Growth of these types of initiatives, particularly initiatives that use local agricultural products as inputs, might result in more trucks on the study segment and greater variance in vehicle speeds.

A number of manufacturing initiatives have failed in the study area, or have relocated to another location instead of the study area. A review of these initiatives suggests that, while transportation factors such as the distance to market and high freight rates may have contributed to the lack of success, failure cannot be attributed to the conditions of the US 2 segment.

It appears that major capacity improvements to US 2 are unlikely to generate significant economic development in the manufacturing sector. Some manufacturing ventures (such as Big Equipment Company) do reportedly suffer from the narrow roadway and related safety issues on the Havre to Fort Belknap segment of US 2. Smaller-scale highway improvements (such as wider shoulders, turning lanes, safety improvements, etc.) may be needed to foster this sector's economic viability and to ensure the success of future ventures.

Energy

The abundance of certain natural resources in the study area creates opportunities for the development of energy-related industries. In particular, the exploration and production of natural gas has seen considerable growth in recent years. Natural gas exploration and production relies on US 2 and its feeder road system to transport inputs (labor, machinery, and supplies) into and around the study area. Another energy initiative involves a potential wind power generation facility at the Fort Belknap Reservation.

The natural gas industry reports experiencing safety and operational problems on US 2, including occasional delays as a result of slow moving vehicles. Improvements to the study segment are unlikely to lead to energy sector growth, however, because the fortunes of energy businesses are driven almost entirely by market prices for energy and by the availability of energy resources (e.g., wind, oil, gas). Any

costs to the industry of the reported occasional delays or safety problems on US 2 are negligible compared to other exploration and production costs, including the cost of travel on feeder roads.

Retail/Services

The retail and services sectors combined employ over 6,500 in the study area, or more than half the workforce. Most retail and service businesses sell their products primarily to local residents or, in the case of Havre, to local residents plus those in surrounding communities. Shoppers from Canada have diminished considerably in recent years due to the weak Canadian dollar. This sector is therefore less of a potential economic growth engine than businesses that sell products outside the region.

Perhaps more important to the regional economy is the movement of study area residents to do shopping, access service providers, or reach jobs at retail and service businesses. US 2 serves as the only link between Havre, Lohman, Chinook, Zurich, Harlem, and Fort Belknap. The movement of Fort Belknap residents to and from the retail and service businesses in Harlem contributes to the relatively high traffic volumes on that segment. Havre is the largest trade center in north-central Montana and as such, is the study area hub for service sector industries and larger retail outlets. Residents in Fort Belknap, Harlem, Chinook, and other communities travel to Havre on the study segment in order to access business and personal services that are not available closer to their homes. Less frequently, these same residents take US 2 to US 87 to reach Great Falls for more specialized services and retail not available in Havre.

Commuters on the US 2 segment report that the mix of vehicles can contribute to occasional delays and sometimes unpredictable travel times, particularly in the summer months. Commuters and shoppers traveling to Havre, Chinook, Harlem, and Fort Belknap also complain of unsafe conditions on the study segment.

The economic health of the study area retail and service businesses is determined largely by the wealth generated by other sectors, and also by the Canadian dollar exchange rate. So although these businesses depend on a safe and reliable US 2 to transport patrons and employees, most are unlikely to expand operations and contribute to regional economic growth as a result of improvements to the study segment.

Public Sector

There are several important and growing public sector activities in the study area that rely on US 2 and may benefit from US 2 improvements. One is the regional headquarters of the US Border Patrol, located in Havre, which relies on US 2 to access border crossings across all of north-central Montana. Another is a proposed combat training facility for the Montana Air National Guard, to be located on the Fort Belknap Reservation. A third is the region's educational institutions, particularly Montana State University-Northern, which has reported difficulty recruiting new faculty because of the poor access to the area.

These institutions and agencies rely on US 2 for the safe and reliable movement of employees and students. Because they are government funded activities to serve public needs, they are unlikely to expand or generate more economic benefits for the study area as a result of US 2 improvements.

Factors Affecting Pass-Through Traffic

There is anecdotal evidence that the condition of US 2 encourages some motorists crossing the state to use Interstates 90 and 94 rather than driving the Hi-Line, even if US 2 would offer the shortest route. Some claim that improving US 2 across the entire state would increase traffic volumes on the US 2 study segment and provide associated economic benefits. US 2 offers the shortest distance for vehicles traveling from Midwestern cities like Minneapolis and Chicago to Glacier National Park, although several

alternative routes are only marginally longer.

Because the US 2 study segment makes up only 45 miles of the total 449 miles from the North Dakota border to Glacier National Park, it is unlikely that the study segment improvements alone would cause a significant number of motorists to divert to the Hi-Line. From an economic perspective, if traffic did divert to the Hi-Line, expansion of traveler-serving businesses from diverted traffic would not be considered new economic growth but rather a transfer of benefits from another corridor.

Currently, another study by MDT, the Montana Highway Reconfiguration Study, is developing a highway economic analysis tool that will identify the economic benefits of transportation projects at an industry level in each region. The Reconfiguration Study aims to maximize the effectiveness of Montana's highway investments in assisting economic development by studying the entire state highway system in Montana. The Reconfiguration Study will provide recommendations on scenarios for highway expansion and related economic development throughout Montana; these findings are scheduled for public release at the end of 2003. Upon availability, the Highway Reconfiguration Study will be reviewed, and any findings that are applicable to the US 2, Havre to Fort Belknap project will be incorporated.

Conclusion

Table ES-1 summarizes the current and planned economic development initiatives in the study area, illustrating that most initiatives have a high reliance on the highway system and many initiatives have a need for highway safety and operational improvements. There are very few initiatives whose implementation and/or business expansion would benefit from major capacity improvements, such as additional through travel lanes, to this section of US 2. Furthermore, a review of failed initiatives suggests that while transportation factors such as the distance to market and high freight rates have contributed to the lack of success of these ventures, the condition of the US 2 study segment has not been a reason for business failure.

Table ES-2 summarizes the potential for each major sector to benefit from transportation investments. The tourism, agriculture, and manufacturing sectors appear to need safety and operational improvements to US 2 in order to maintain viability and preserve the potential for future economic growth. Based on our review of the economic growth initiatives, none of the sectors are likely to experience economic growth as a result of major capacity improvements to US 2. Therefore, we conclude that major capacity improvements to the US 2 segment on their own are unlikely to generate significant regional economic development benefits.

Table ES-1: Summary of Current Initiatives and Transportation Linkages

Initiative	Current Economic Impact	Reliance on Highway System	Current Transportation Needs	Potential for Business Expansion
Tourism				
Havre Beneath the Streets	10,000 visitors per year	High	None	Moderate
Bear Paw Battleground	6,300 visitors per year	High	Signage on U.S. 2	High
Bison Indian Burial Site	1,700 visitors per year	High	Signage on U.S. 2	High
Fort Assiniboine	500-1,000 visitors per year	High	None	High
Heritage Center	unknown -- small	High	None	Moderate
Beavercreek Park	500 visitors per day at peak	High	None	Moderate
Fort Belknap Reservation	1,200 visitors per year	High	Signage on U.S. 2	High
Blaine Co Wildlife Museum	Planning Stages	High	Unknown	Moderate
Dinosaur Digs	Planning Stages	High	Unknown	Moderate
Lewis and Clark Trail	unknown -- small	High	Unknown	Moderate
Agriculture				
Wheat	$71.7 M in sales (1997)	Moderate	Safe roadways to reach elevators	Low
Higher Value Crops	unknown -- small	High	Safe roadways to reach markets	Moderate-High
Cattle	$28.9 M in sales (1997)	High	Reduced truck shipping costs	Low
Manufacturing				
Big Equipment Co.	$3 million in sales; 9 employees	High	Wider road, safety improvements to facilitate oversize loads	Moderate
Biodiesel facility	Planning Stages; projected staff of 20	High	Adequate capacity and safety to transport seeds and oils	High
GE Locomotive Maintenance	50 employees	High	Reduced truck shipping costs	Low-moderate
Enell	6 employees	High	Better US 2 reliability during inclement weather	Moderate
Energy				
Natural Gas Extraction	unknown -- large	High	Safety and operational improvements to US 2	Low
Wind Power	Planning Stages; projected staff of 5	Moderate	Unknown	Moderate
Retail and Services				
Advantage Line/Call Solutions	8 employees	Moderate	None	Moderate
Broadband Internet Service	Planning Stages; projected staff of 9	Low	None	Low
Shopping and Services (generally)	over 5,000 employees	Moderate	Safety and operational improvements to US 2	Low
Public Sector				
US Border Patrol	40 employees	High	Safety and operational improvements to US 2	Moderate
Montana Air National Guard Training Facility	$10 million development cost	Moderate	Unknown	Low
MSU-Northern	248 emp, 1451 students	Moderate	Safety and operational improvements to US 2	Low

Table ES-2: Summary of Potential for Sectors to Benefit from Transportation Improvements

Sector	Need for US 2 Safety and/or Operational Improvements to Maintain Sector Viability	Potential for Economic Growth as a Result of Major Capacity Improvements to US 2
Tourism	High	Low
Agriculture	High	Low
Manufacturing	High	Low
Energy	Moderate	Low
Retail and Services	Moderate	Low
Public Sector	Low	Low

Although there does not appear to be a strong linkage between the region's economic development initiatives and major capacity improvements to US 2, it is clear that US 2 plays a vital role in sustaining the region's economy, and that much of the business activity in the area relies on the US 2 segment to carry goods and people. As such, investments that improve the operation and safety of US 2 (such as wider shoulders, improved intersections, new turning lanes, and improved signage) appear to be needed to sustain the region's economy and ensure the potential for future economic growth.

1 BACKGROUND AND METHODOLOGY

This report is an assessment of the existing economic baseline conditions for the US 2, Havre to Fort Belknap environmental impact statement (EIS). The study segment extends from the east side of Havre, RP 383.6, to the junction of MT 66, RP 428.5, for a total distance of 44.9 miles. The report describes the socio-economic conditions in the vicinity of the study segment, reviews current and past economic development initiatives, and assesses the potential to promote economic development through transportation investments generally and through improvements to the US 2 segment specifically.

Economic impact is one of the many topic areas of analysis in an EIS. The analysis of economic impacts is a two-step process:

1) Identify the existing economic baseline conditions; and
2) Assess economic impacts of the alternatives by comparing alternatives to the baseline.

This report addresses the first step in the economic analysis. The conclusions reached in this report are based on analysis of the regional economy according to accepted methods, and supplemented by new approaches to assessing the links between economic development and transportation investments.

The next step in the economic impact assessment will be to compare the economic impacts of the various alternatives. One of the tools used for this comparison will be a benefit-cost analysis. The benefit-cost analysis typically compares project costs to the user benefits of transportation investments. Such analysis allows for comparison across project alternatives by expressing each in terms of a benefit-cost ratio – the dollar benefits per dollar unit cost.

The economic analysis, including the benefit-cost analysis, is one of many elements that will be considered in evaluating the alternatives for improvements to US 2. The impacts and benefits of the various alternatives, including findings from the benefit-cost analysis, will be summarized in the draft and final EIS documents.

The remainder of this section reviews research on the relationship between highway investment and economic development, describes the methodology for the assessment contained in this report, and discusses next steps. Section 2 presents socio-economic baseline conditions in the vicinity of the study segment. Section 3 describes past, current, and future economic development opportunities for the study area, and assesses the linkages between these opportunities and transportation. Section 4 summarizes the findings and draws conclusions about the potential for US 2 improvements to create regional economic development benefits.

1.1 Research on Economic Impacts of Highway Investments

Investments in transportation facilities can affect a regional economy by changing the level of economic activity in an area. Regional economic development impacts can include the following:

- Business Location Impacts – The transportation efficiency benefits associated with highway improvements can enhance the competitive position of the local economic impact area, making it a more favorable location for new businesses and residents.
- Improved Market Reach – Transportation improvements can expand the breadth of suppliers, customers, and workers that can be reached within a reasonable amount of time.

- Roadside Development Impacts – An increase in through traffic volume along a highway can generate the development of establishments to provide the goods and services demanded by travelers.
- Tourism Development Impacts – The improved accessibility to the local economic impact area can allow the area to take advantage of increased tourism opportunities, assuming that supportive infrastructure is in place.

Regional economic impacts can be observed through, for example, changes in employment, sales, income, property values, or tax receipts. Despite substantial research into the economic effects of highway investments, there continues to be substantial disagreement as to the extent and nature of regional economic impacts.

One line of thought contends that new highways create broad economic growth and development along highway routes. This argument draws on studies such as those that analyzed impacts of the Appalachian Development Highway System (ADHS). A 1981 survey of state highway departments that was designed to determine the importance of highways for businesses located in Appalachia found that the ADHS has broadly aided employment, industrial growth, and provision of services in the region, and as such, advocated the need for continued funding of the highway system.[5] In 1998, an evaluation of ADHS found that ADHS created over 16,000 jobs, led to increased production valued at $6.9 billion, and made travel in Appalachia easier and more cost-effective.[6]

The second line of thought argues that "highways are necessary but not sufficient" for economic growth and development.[7] Good access alone will not ensure economic development, absent other necessary factors including availability of competitively priced land, labor, capital, and supporting infrastructure. One study found that although highways may be an important factor in explaining rural development, distance to an urban area is often a more important determinant of non-metro growth than the presence of highways.[8] Another study also supported this conclusion, finding that the beneficiaries of Interstate highway access in terms of economic growth have been Interstate counties in close proximity to large cities or having some degree of prior urbanization, such as cities with 25,000 or more residents.[9] Rural Interstate and off-Interstate counties were found to have benefited little from highway investment. A third study used regression analysis to find that although access to Interstate highway interchanges contributed to 0.42 percent additional income growth in rural communities, this was much less than other factors that the authors investigated, such as the presence of an airport with scheduled passenger service within 50 miles.[10]

A third line of thought contends that highway improvements have limited impact on business location decisions and economic development, particularly in rural areas. One study examined the degree to which investments in high capacity highways are likely to influence business location decisions.[11] After

[5] *Appalachia.* 1982. "Appalachian Highways are Catalysts of Change," Vol. 15, Nos 2/3, pp.8-17.
[6] Wilbur Smith Associates. 1998. "Appalachian Development Highways Economic Impact Studies." Prepared for the Appalachian Regional Commission.
[7] Forkenbrock, David J, Thomas Pogue, David Finnegan, and Norman Foster, "Transportation Investment to Promote Economic Development" in *Infrastructure Investment and Economic Development: Rural Strategies for the 1990s*. December 1990.
[8] Harris, Curtis C. 1980. "New Developments and Extensions of the Multiregional, Multi-Industry Forecasting Model," *Journal of the Regional Science*, Vol. 20, No. 2, pp 159-71.
[9] Rephann, Terance J., and Andrew M. Isserman, "New Highways as Economic Development Tools: An Evaluation Using Quasi-Experimental Matching Methods," *Regional Science and Urban Economics*, Vol. 24, No. 6, pp 723-51, 1994.
[10] Aldrich, Lorna and Lorin Kusmin, "Rural Economic Development: What Makes Rural Communities Grow?" *Agriculture Information Bulletin*. U.S. Department of Agriculture, Economic Research Service, Bulletin No. 737, September 1997.
[11] Study by Wilbur Smith Associates noted in Forkenbrock, David J and Norman S J. Foster, "Highways and Business Location Decisions," *Economic Development Quarterly*. Vol 10, No 3, pp 239-48, 1996.

surveying Iowa businesses, the authors found that proximity to markets and materials is more important than access to transportation facilities, a finding that is consistent with previous research. The study suggests that other factors, such as quality and cost of labor, are likely to play larger roles in location decision than transportation. Because of the mature state of the nation's rural highway system, the authors conclude that:

1) Access to highways has become a less important factor over time,
2) Location poses few problems on an uncongested, well-maintained rural highway, and
3) Maintenance and relatively minor improvements are likely to be more cost-effective economic development strategies than expensive highway construction projects.

Several studies have specifically addressed the issue of potential economic development benefits of four-lane highways, noting the perceived additional benefits of four-lane highways over "super-two" highways. One study concluded that most of the economic gains realized from a four-lane highway would also be obtained if a 2,000-vehicle-per-day-road were upgraded to a super-two highway.[12] In a study of transportation investments as a means to promote rural economic development, the authors concluded that even if every community in America had access to a four-lane highway, some places would still have locational advantages by virtue of being closer to large centers of economic activity.[13]

The contention between the various lines of thought exists in part because there are unresolved issues surrounding the accurate measurement of economic effects of highway investment. Studies that look back at past highway investments to try to assess the economic effect must confront key questions such as:

- Whether economic growth arising from the transportation investment would have occurred if the road had not been built or improved.
- Whether the transportation investment created the development or whether it was the other way around.
- Whether the investment has merely redistributed economic activity from another region or whether it has actually generated new economic activity.

These questions are complex and often do not produce clear or consistent answers. Indeed, there is no consensus on the most appropriate way to measure economic impacts, with research over the last two decades drawing on various quantitative techniques such as regression, matched-pair comparison and shift-share analysis, as well as more qualitative techniques, such as interviews.

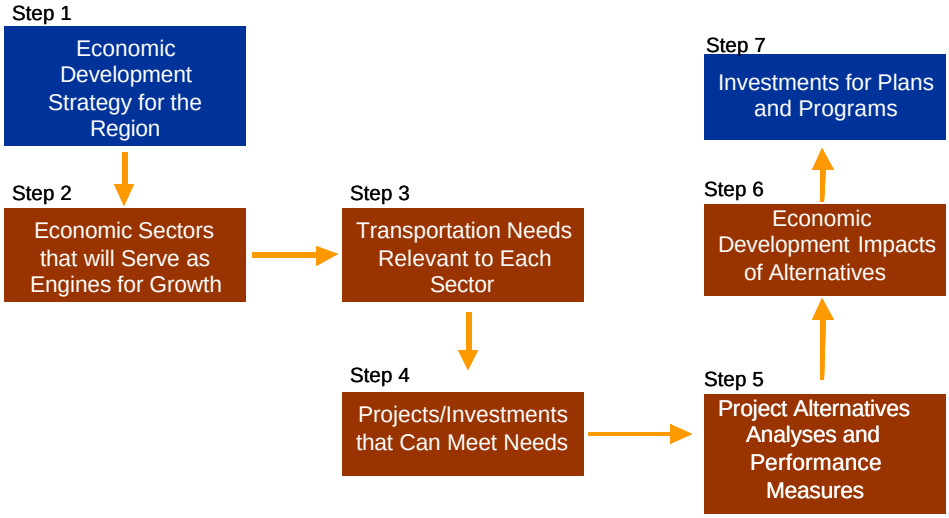
1.2 Study Methodology

As can be discerned from the discussion in Section 1.1 (above), assessing the economic effects of highway investments such as that proposed for US 2 is challenging. Economic development initiatives in a region often rely on improvements to highway facilities, and more direct links between highway improvements and a region's economic development potential can be ascertained by asking the following question: "what is the economic development strategy for the region and how reliant is the strategy's success on improvements to the transportation system?"

[12] Forkenbrock, David J and Foster, Norman S J. 1996. "Highways and Business Location Decisions," *Economic Development Quarterly*. Vol 10, No 3, pp 239-48.
[13] Forkenbrock, David J, Pogue, Thomas, Finnegan, David and Foster, Norman. "Transportation Investment to Promote Economic Development" in *Infrastructure Investment and Economic Development: Rural Strategies for the 1990s*. December 1990.

Consequently, an approach that can better demonstrate the need for highway investments in economically disadvantaged areas where traffic levels are relatively low is to link a region's economic development strategy to infrastructure needs. As depicted in Figure 1, a region's economic development strategy defines the economic sectors that will serve as the primary focal points for development (such as agriculture, manufacturing, telecommunications, etc.). Once a region has identified those sectors (based on indicators such as comparative advantage), transportation and other infrastructure needs can be assessed; specific investments can be identified; alternative investments can be weighed against one another; and the economic development impacts of alternatives can be determined by demonstrating the reliance of specific development initiatives on highway improvements and/or by investigating the incremental benefits that can be accrued from investments in highways. This approach allows for a more direct link between specific development initiatives and highway needs, and can supplement analyses that are based on more conventional approaches such as benefit-cost analysis.

Figure 1: Linkages Between Economic Development Strategy and Transportation Needs Assessment



The implementation of this approach requires the following:

- *Information on the region's economic development strategy.* In particular, data on the expected economic benefits (such as increases in jobs and income) are needed for each of the economic development initiatives that have been proposed for the region (past, current, and future).
- *Assessments of the relationship between specific economic development initiatives and the region's transportation system.* Specifically, for each of the initiatives, an assessment of the initiative's reliance on a transportation improvement is required. Given the expected economic benefits associated with the economic development initiative, the reliance factor can be applied to ascertain in a direct way the influence of the transportation investment on economic development.

As part of this study, ICF Consulting conducted a site visit and numerous interviews to gather the information described above. (Interviewees are listed in the Appendix.) We identified numerous economic development initiatives and discussed with stakeholders the reliance of specific initiatives on capacity improvements to the relevant US 2 segment. Although detailed data on the economic benefits of specific initiatives were not available, this report describes the relationships between the region's economic development initiatives and improvements to US 2. The goal of this analysis is to determine whether or not major capacity improvements to US 2 are needed in order to realize the economic benefits associated with the region's growth strategy (as defined by the initiatives). As part of a subsequent

analysis (not documented in this report), the costs and benefits of investment alternatives will be assessed using a conventional benefit-cost analysis model. Findings from the benefit-cost analysis will be summarized in the draft and final EIS documents.

1.3 Next Steps

The next step in the analysis of economic impacts will be a benefit-cost analysis. A benefit-cost analysis is a commonly accepted approach to assess user impacts of highway investments. User impacts measure the change in cost to users of an improved facility – drivers and passengers of private and commercial vehicles. Benefits to users can include travel time savings, accident cost savings, and vehicle operating cost reduction. In a benefit-cost analysis, all economic benefits (and disbenefits) are converted to dollar terms, summed, and compared to the project costs such as construction and operation expenditures. The resulting benefit-cost ratio can then be used to compare different investment alternatives. We will conduct this analysis once the alternative improvements for the study segment have been defined. The results of the benefit-cost analysis will then be included in the EIS document. The economic impact analysis, including the benefit-cost analysis, is one of many impact topics that will be taken into consideration to identify a preferred alternative in the EIS.

2 SOCIO-ECONOMIC CONDITIONS

The project segment is located in north-central Montana, approximately 30 miles south of the Canadian border and spanning portions of Hill County, Blaine County, and the Fort Belknap Indian Reservation. The segment is part of the "Hi-Line" in Montana, a string of farm and ranch communities stretching 666 miles across northern Montana along US 2. The eastern portion of the Hi-Line, and indeed all of eastern Montana, has been experiencing population loss. The most recent census figures show a six percent decline in population during the 1990s in the eastern plains counties of the state. However, this figure masks some local variation: population losses in off-reservation farm and ranch communities have been offset by a population increase on the Hi-Line's four Indian reservations – Fort Peck, Fort Belknap, Rocky Boy's and Blackfeet.

The study region is semi-arid, with average annual rainfall of 12 inches and average summer and winter temperatures of 70 and 14 degrees Fahrenheit. The Milk River flows through the area alongside US 2 until it converges with the Missouri River to the east at Fort Peck Lake. The closest major city is Great Falls, approximately 100 miles southwest of Havre. Agriculture remains the area's economic mainstay, particularly wheat growing and cattle ranching.

2.1 Demographic Profile of the Study Area[14]

Hill and Blaine Counties are rural, with a combined population density of 3.3 persons per square mile, compared to 6.2 for the state as a whole. Hill County's 2000 population of 16,673 represents a 5.6 percent decline since 1990, a trend that was consistent with most other counties in eastern Montana. Blaine County outside the Fort Belknap Indian Reservation had a population of 4,208 in 2000, also down from 1990. In contrast, the Fort Belknap Reservation (Blaine County portion) grew nearly 21 percent during the 1990s, to 2,801 residents.

Residents in the study region are predominantly white (72 percent) and Native American (25 percent).[15] In terms of personal income, Hill County, with more urban residents and a more diversified economy, fares better than Blaine County. Median household income in Hill County was $30,781 in 2000, 93 percent of the state average. Blaine County, exclusive of the Fort Belknap Indian Reservation, had a median household income of $28,241, 86 percent of the state average. The median household income on the Fort Belknap Reservation (Blaine County portion only) is $21,152, or 64 percent of the Montana average. Table 1 summarizes these demographic characteristics.

[14] For the purposes of this report, the "study area" is generally assumed to be all of Hill and Blaine Counties.
[15] Calculated as average of populations in Blaine and Hill Counties.

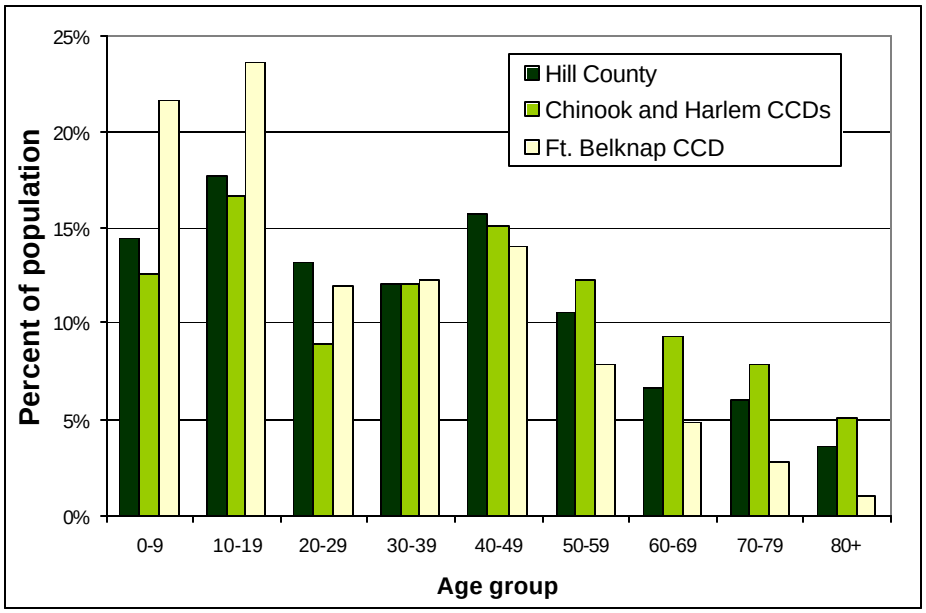
Table 1: Study Area Demographic Characteristics

	Hill County	Blaine County (Chinook and Harlem CCDs)	Ft Belknap Reservation (CCD)	Montana
Population, 2000	16,673	4,208	2,801	902,195
Population, 1990	17,654	4,409	2,319	799,065
% Change 1990-2000	-5.6%	-4.6%	20.8%	12.9%
% White, 2000	80%	85%	4%	91%
% Native American, 2000	17%	12%	95%	6%
Median Household Income	$30,781	$28,241	$21,152	$33,024

Source: U.S. Census

Like much of Montana, the population in the study area is aging. Between 1970 and 2000, the median age of Blaine County rose from 26.9 to 34.4 and in Hill County from 24.3 to 34.5. These age trends suggest that the counties have experienced notable out-migration combined with falling birth rates. The aggregate age statistics actually mask underlying differences between the white population, which is aging even more than the median age would suggest, and the Native American population, which is experiencing a small baby boom. Figure 2 shows the 2000 age distribution in Hill County, Fort Belknap CCD (county census division), and the combined Chinook and Harlem CCDs. Fort Belknap shows a much higher proportion of residents under age 20 and a smaller portion of residents over age 50.

Figure 2: Age Distribution in Study Area Communities



The unemployment rate in Hill County was 4.1 percent in 2001, lower than the Montana average of 4.6 percent. Unemployment in Hill County has generally been close to the statewide figure throughout the 1990s. Blaine County's unemployment rate has historically been higher than the Montana average. It

stood at 5.6 percent in 2001, down from a high of 10.2 percent in 1997. Unemployment on the Fort Belknap Reservation is very high, reported as 71 percent in the 2001 Bureau of Indian Affairs Labor Force Report and 16.5 percent by the Montana Department of Labor and Industry.[16]

The principal communities along the study segment are Havre (at the western edge), Chinook, Harlem, and Fort Belknap (at the eastern edge), and smaller communities include Lohman and Zurich.

Havre

With 9,261 residents, Havre is the largest city on this project segment of the Hi-Line and the Hill County seat. The city is located just east of the junction of US 2 and US 87. Like many other communities in the region, Havre experienced a decline in population (5.6 percent) between 1990 and 2000. Havre is the retail and service hub for much of north-central Montana. While agriculture remains the mainstay, the city boasts a relatively diverse economy, with hospital and health, education, professional, and manufacturing as important industry sectors. Montana State University-Northern, a four-year institution with 1,451 students, is located in Havre and supplies a well-trained workforce. Table 2 lists the largest Havre employers. Downtown Havre flourished in the 1970s and 80s, gaining a new department store and other retail, due in part to an influx of Canadian shoppers. Since then, the Canadian dollar has weakened and Havre retail has declined – the mall is currently half vacant – and downtown has become more characterized by professional services.[17]

Table 2: Largest Employers in Havre

Employer	Employees
Northern Montana Health Care	691
Burlington Northern/Santa Fe Railroad	508
Havre Public Schools	295
Montana State University-Northern	248
Hill County	180
Kmart	129
Gary & Leo's IGA	125
Military	117
City of Havre	88
Hill County Electric/Triangle Telephone	85

Source: Havre Area Community Profile, www.havremt.com

Chinook

Chinook is the largest city in Blaine County and the county seat. The 2000 population of 1,386 is an 8% decline from 1990. Chinook serves the farming and ranching activity in surrounding Blaine County. The US 2 study segment passes directly through Chinook. Bear Paw Battlefield, part of the Nez Perce National Historic Park, is located 16 miles south of Chinook on Secondary 240.

[16] The U.S. BIA and Montana DLI use different methodologies for calculating unemployment rates, which accounts for the difference. Montana DLI figures include only those unemployed individuals who are actively seeking work. BIA figures are based on all working age individuals, and thus includes those unemployed individuals who have given up seeking work.
[17] Interview with Randy Hanson, US Department of Commerce Regional Representative.

Harlem

Harlem is a small community of 848 residents, located just north of US 2 on Secondary 338. It too experienced a decline in population during the 1990s (-4 percent). Harlem has a much higher proportion of American Indians (42.6 percent) than Havre or Chinook, due to its proximity to the Fort Belknap reservation. Traffic volumes between Harlem and Fort Belknap are relatively high because many reservation residents shop at Harlem stores. One of the region's largest and busiest grain elevators is located in Harlem on the BNSF rail line.

Fort Belknap Reservation

The majority of the Fort Belknap Reservation is located in Blaine County, with its eastern edge crossing into Phillips County. The reservation is the state's fourth largest, covering 654,000 acres. There are three main communities on the reservation: Fort Belknap, Hays, and Lodgepole. Unlike the majority of communities along the Hi-Line, the Fort Belknap reservation experienced an increase in population since 1990. The reservation's current population of 2,959 represents an 18 percent increase over the 1990 population.[18] American Indians account for 94 percent of reservation residents, primarily members of the Gros Ventre and Assiniboine Tribes.

The community of Fort Belknap is the largest on the reservation, with a 2000 population of 1,262. Located at the intersection of US 2 and MT 66, this community is the seat of the Fort Belknap Tribal Government and the location of the Bureau of Indian Affairs office and Fort Belknap Indian Hospital. The community of Hays, located approximately 35 miles south of the Fort Belknap Agency, has a population of 702, or approximately 35 percent of the reservation population.

The reservation has public schools in Hays, Lodgepole, and Harlem as well as a community college in Fort Belknap that offers several associate degree programs. In addition to the hospital at Fort Belknap, there is a new 6-bed hospital and health center clinic at Hays operated by the Indian Health Service. Shopping in reservation communities is limited; the off-reservation town of Harlem is the closest commercial center.

The Bureau of Indian Affairs and the tribe are the major employers on the Fort Belknap reservation. The economy is heavily reliant on agriculture, which includes farming, ranching, and leasing lands. Grazing represents a substantial proportion of the tribe's annual revenue.[19] The reservation leases both irrigated and dry farmland, totaling 85,386 acres. Important crops grown on the reservation include wheat, hay, and barley. The tribe is working to develop tourism and a market for handcrafted Native American arts and crafts. Trout fishing and hunting are abundant on the reservation; antelope, bird and gopher hunts are available, requiring licenses and guides. The tribe also manages a herd of 300 buffalo.

[18] Count includes reservation and off-reservation trust land (2000 Census estimate)
[19] "Right to do business" fee, as grazing tax is called is one dollar per animal. The tax is waived for first 300 head of tribal member-owned cattle. *Tiller's Guide to Indian Country: Economic Profiles of American Indian Reservations*. Edited and Complied by Veronica E. Valarde Tiller. BowArrow: Alberquerque, New Mexico. 1996

Table 3: Fort Belknap Reservation Statistics

Total Area (acres)	654,000
Tribally Owned	162,933
Allotted Land [a]	427,480
Non-Indian Owned	25,535
High School Graduate or Higher	66.6%
Bachelor Degree or Higher	6.0%
Per Capita Income	$4,536
Total Labor Force	662
Unemployment Rate	71%
Total Reservation Population	2,959

a: Allotted land refers to land for which the United States holds legal title in trust but the entire beneficial interest is in individual Native American allottees.
Source: 2000 US Census; *Tillers Guide to Indian Country*; Montana Department of Labor and Industry; Bureau of Indian Affairs Labor Force Report.

2.2 Economic Profile of the Study Area

Employment by Industry

As shown in Table 4, the largest employment sources in the study area are the retail, services, and government sectors. Transportation-related businesses (mostly BNSF) are an important source of employment primarily in Havre. Less than two percent of all employment is in manufacturing, as compared to five percent in Montana as a whole. Farming is the major employment source outside of the cities and accounts for nearly one-quarter of employment in Blaine County. The distribution of employment across industry sectors changed little between 1990 and 2000.

Table 4: Study Region Employment (for Blaine and Hill Counties), 1990 – 2000

Industry	1990 Employment Number	1990 Employment % of Total	2000 Employment Number	2000 Employment % of Total	1990-2000 %Change
Farm employment	1,462	12%	1,485	12%	2%
Nonfarm employment	10,599	88%	11,270	88%	6%
Ag. services, forestry, fishing [a]	196	2%	290	2%	48%
Mining	87	1%	153	1%	76%
Construction	385	3%	508	4%	32%
Manufacturing [b]	223	2%	148	1%	-34%
Transportation, communications, & public utilities [b]	1,066	9%	908	7%	-15%
Wholesale trade	391	3%	372	3%	-5%
Retail trade	2,158	18%	2,323	18%	8%
Finance, insurance, & real estate	610	5%	695	5%	14%
Services	3,073	25%	3,533	28%	15%
Private Employment Sub-Total	8,189	68%	8,934	70%	9%
Federal gov't, civilian	374	3%	337	3%	-10%
Military	240	2%	133	1%	-45%
State and local gov't	1,796	15%	1,866	15%	4%
Gov't Employment Sub-Total	2,410	20%	2,336	18%	-3%
Total	12,061	100%	12,755	100%	6%

a: Blaine County data unavailable for 2000; 1997 data reported
b: Blaine County data unavailable for 2000; 1999 data reported
Note: 2000 total and private employment subtotal are not equal to the sum of industry-specific data presented due to the prior year reporting for Blaine County as noted.
Source: U.S. Bureau of Economic Analysis, Regional Economic Information System

Earnings by Industry

Services and state and local government are the important sources of income for the study area.[20] In Hill County, transportation is the second largest source of earnings (18 percent), and over two-thirds of this is from railroad industries (primarily BNSF). However, the transportation sector has declined in importance in Hill County from 1990, when it made up 24 percent of earnings. It should be noted that farming appears to have declined substantially in terms of earnings.

Growing and Declining Sectors

For the study area, both the mining and construction sectors demonstrated considerable growth during the 1990s. As shown in Table 5, mining employment (primarily natural gas) increased 51 percent in Hill County and nearly tripled in Blaine County, although employment totals remain relatively low. Employment in the construction sector increased 29 percent in Hill County and 45 percent in Blaine

[20] The largest industries by earnings for Blaine County (2000) are state and local government (24.2% of total earnings), federal civilian government (20.6%), and services (15.3%). For Hill County, the largest industries are services (28.7%), transportation and public utilities (18.2%), and state and local government (16.95%).

County. Other high growth sectors in Hill County include agricultural services, forestry, and fishing (107 percent growth); finance, insurance, and real estate (23 percent); and services (22 percent). In Blaine County, the only other growth sectors are local and federal civilian government.

The largest declining sectors in employment percentage terms are military (both counties), state government (both counties), manufacturing (Hill County), federal civilian government (Hill County), and finance (Blaine County).

Table 5: Growing and Declining Industries, 1990 – 2000 Employment Change

Top Growth Sectors in Hill County

Industry	2000 employment	1990 - 2000 change
Agric. services, forestry, fishing	188	107%
Mining	95	51%
Construction	398	29%
Finance, insurance and real estate	611	23%
Services	2886	22%

Top Growth Sectors in Blaine County [a]

Industry	2000 employment	1990 - 2000 change
Mining	58	142%
Construction	110	45%
Local gov't	453	9%
Federal civilian gov't	203	9%

Top Declining Sectors in Hill County

Industry	2000 employment	1990 - 2000 change
Military	95	-50%
Manufacturing	113	-41%
Federal civilian gov't	134	-29%
Transportation/public utilities	840	-16%
State gov't	493	-13%

Top Declining Sectors in Blaine County

Industry	2000 employment	1990 - 2000 change
State gov't	24	-52%
Military	38	-25%
Finance	84	-25%
Retail	374	-8%
Farm	664	-8%

a: Only four Blaine County sectors show growth between 1990 and 2000
Source: Bureau of Economic Analysis, Regional Accounts Data

Regional Trade Center Hierarchy

In order to understand the economic relationships between communities in the study area and the role of the transportation system in the regional economy, we investigated the spatial hierarchy of study area communities. This concept is based on the premise that each urbanized area in the North American central plains, from a small hamlet to a large city, forms a trade center at some level in the hierarchy. [21] The spatial hierarchy assumes that certain goods and services are available in a community only when it exceeds a certain size threshold, and this results in a flow of persons from one community to another to purchase goods and services that are not locally available. By understanding how the trade center hierarchy concept applies to the study area, we can better describe the role of US 2 in providing access to goods and services to area residents.

Studies that have investigated the system of trade centers in the Upper Midwest suggest eight levels in the hierarchy:

[21] See: Casey, William, *Trade Centers of the Upper Midwest 1999 Update.* Center for Urban and Regional Affairs, University of Minnesota, June 1999; Anding, Thomas, John S. Adams, William Casey, Sandra de Montille, and Miriam Goldfein, *Trade Centers of the Upper Midwest: Changes from 1960 to 1989.* Center for Urban and Regional Affairs, University of Minnesota, 1990; and Stabler, Jack C., "Trade Center Evolution in the Great Plains," *Journal of Regional Science,* Vol . 27, No. 2, 1987.

- Level 0: Major metro area
- Level 1: Primary Wholesale/Retail Center
- Level 2: Secondary Wholesale/Retail Center
- Level 3: Complete Shopping Center
- Level 4: Partial Shopping Center
- Level 5: Full Convenience Center
- Level 6: Minimum Convenience Center
- Level 7: Hamlet

Using demographic (population) and business variables (for example, the number of establishments in the construction, manufacturing, retail and wholesale industries), the methodology ranks each community in the regional trade center hierarchy. For example, a recent study suggests a hierarchy for Havre, Great Falls, and Billings as shown in Table 6.

Table 6: Trade Center Hierarchy for Billings, Great Falls, and Havre

City	Level 1999	Level 1990	2000 Population	Establishments (1999)							
				Construction	Comm. Services	Manuf.	Prof. Services	Retail	Transp.	Whlsale	Total
Billings	1	1	89,847	434	1,774	273	1,379	1,103	271	550	5,784
Great Falls	1	2	56,690	182	1,013	113	724	730	149	251	3,162
Havre	3	3	9,621	34	217	15	121	137	35	42	601

Source: Casey, William, *Trade Centers of the Upper Midwest 1999 Update*. Center for Urban and Regional Affairs, University of Minnesota, June 1999; U.S. Census.

Although Havre is the only community in the study area profiled in the trade center literature, we can apply a similar approach to other communities. As shown in Table 7, Chinook, with a 2000 population of 1,386 and a total of 104 establishments, would be lower in the regional trade center hierarchy than Havre, which has a 2000 population of 9,261 and a total of 449 establishments.[22] Given its size, Chinook has a significant number of retail establishments (17) and food and lodging establishments (11), but few establishments providing arts and entertainment (2), information (1) and real estate (3). In practical terms, this might mean that a person living in Chinook buys gas and groceries locally, goes to Havre for entertainment, department store shopping, and real estate services, and goes to Great Falls for specialty goods and services.

[22] It should be noted that different establishment counts for Havre are shown in Exhibits 6 and 7. The reason for this difference is as follows: Exhibit 6 draws on a research report that uses 1998 Dun and Bradstreet data, which is based on the Standard Industrial Classification (SIC) system, whereas Exhibit 7 is derived from 2000 US Census Zip Code Business Pattern data, which is based on the North American Industry Classification System (NAICS). Because the purpose of these tables is to illustrate the relationship between towns, not the actual establishment count, we have not attempted to reconcile the two data sources. Havre's position in the trade center hierarchy does not change whether the SIC or NAICS system is used.

Table 7: Number of Establishments in Havre and Chinook by Industry, 2000

City	Havre	Chinook
Forestry, fishing, hunting and agriculture	3	-
Mining	6	2
Utilities	3	2
Construction	39	13
Manufacturing	12	1
Wholesale trade	15	8
Retail trade	84	17
Transportation & warehousing	13	4
Information	11	1
Finance & insurance	26	10
Real estate & rental & leasing	19	3
Professional, scientific & technical services	36	6
Admin, support, waste management, remediation	14	2
Educational Services	2	1
Health care and social assistance	41	9
Arts, entertainment & recreation	15	2
Accommodation & food services	46	11
Other Services (except public administration)	62	9
Auxiliaries	-	1
Unclassified establishments	2	2
Total	449	104

Source: U.S. Census Bureau, Zip Code Business Patterns

Economic Base Analysis

Economic base analysis is a standard tool for regional economic analysis. It is grounded in the assumption that local or regional economic activities can be classified as either “basic” or “non-basic.” Basic industries and firms are dependent on external factors, and export or sell their goods and services to consumers outside of the local market area. These industries and firms are often considered the engines of growth of the local and regional economy. In contrast, non-basic industries and firms depend largely upon local business conditions, selling goods and services only locally. Along with regional trade center analysis, economic base analysis can help understand how communities interact in terms of employment and trade flows, which can then inform an assessment of the extent to which the transportation infrastructure supports these movements.

Location quotient estimation is a technique used to identify basic industries in a region. This technique compares the proportion of income or employment in a specific industry within the local economy to the proportion of income or employment in that same industry within a larger reference economy (usually the state or nation). A location quotient of more than one (LQ>1) suggests that the local area has a higher proportion of income or employment concentrated within that industry than does the larger reference economy. It is assumed that this industry meets local needs for its products or services and also exports some output to non-local areas.

For this study, we used earnings data to determine location quotients for industries in Hill and Blaine Counties. Table 8 lists the basic industries in each county.[23]

Table 8: Basic Industries in Hill and Blaine County

Hill County

Industry	Location Quotient
Railroad transportation [a]	9.86
Farm	3.49
Communications	2.57
Oil and gas extraction	2.44
Social services	2.26
Membership organizations	2.00
Educational services [a]	1.89
Motion pictures	1.88
Automotive dealers and service stations	1.30
Health [b]	1.29
Personal services	1.27
Real estate	1.15
Legal services	1.12
Food stores	1.09
Eating and drinking places	1.05
Agricultural services	1.02

Blaine County

Industry	Location Quotient
Educational services	5.49
Farm	5.06
Agricultural services [b]	4.12
Federal civilian government	3.42
Food stores	1.57
Communications	1.25
Private households [b]	1.17
Automotive dealers and service stations	1.04

Notes: Data for 2000 unless noted; a: Unavailable for 2000, 1999 reported; b: Unavailable for 1998-2000, 1997 data reported

Source: ICF Consulting calculations using Place of Work Earnings Data from U.S. Bureau of Economic Analysis, Regional Economic Information System

For Hill County, the economic base analysis indicates a high concentration (LQ greater than or equal to 2.0) in railroad transportation, agriculture (farm), communications, oil and gas extraction, social services, and membership organizations. Hill County also shows a concentration in other service sectors, including educational services, health, personal services, real estate, and legal services. These findings support the notion that Hill County (primarily Havre) functions as a service provider for surrounding counties in north-central Montana.

The location quotients also largely reflect the largest employers in Havre, presented earlier in Table 2. For example, among the ten largest employers are Northern Montana Health Care, BNSF Railroad, Havre Public Schools, and Triangle Telephone, which are classified under health, railroad transportation, local government, and communications, respectively.

The economic base analysis for Blaine County indicates the importance of agriculture to the local economy, with high location quotients for earnings in the farm and agricultural service sectors. However, on the whole, there are relatively few private sector basic industries in Blaine County compared to Hill County. The analysis also demonstrates the concentration of government-funded activities in the local economy. For example, federal civilian government has a location quotient of 3.4.

[23] Note that some of these industries may not be financed with outside dollars as much as the location quotient would suggest. For example, rural schools often must devote disproportionate resources to transportation, and educational services therefore shows high computed location quotients.

A comparison of the basic industries in Table 8 with the employment changes shown in Tables 4 and 5 reveals some of the underlying causes of the study area's population decline and slow employment growth. For example, employment in the transportation and public utilities sector dropped 16 percent in the 1990s in Hill County; a major component of this sector (railroads) is one of Hill County's most significant exporting industries. Similarly, one of Blaine County's top exporting sectors (farm) experienced an eight percent drop in employment over the 1990s.

In terms of making an assessment about products that are not readily available at the local level and might result in a flow of consumers from one community to another, it is useful to review the industries with location quotients less than 1.0. For a given industry, this would indicate a smaller proportion of total employment or income in the local economy than in the state as whole. Economic base theory assumes that the output from such an industry is not sufficient to meet local demand, thus requiring the local area to import some of this product or service.

Table 9 shows the industries in Blaine County with a location quotient less than 1.0, and the corresponding location quotient in Hill County. Many of the non-basic industries in Blaine County are in the service sector, such as business services, real estate, health services, personal services, insurance agents and brokers, and social services. Economic base analysis suggests that Hill County provides some of these services for Blaine County (such as real estate, health services, and social services) while others (such as business services and insurance agents and brokers) must be obtained in more distant locations like Great Falls.

Table 9: Non-Basic Industries in Blaine County

Industry	Location Quotient	
	Blaine County	Hill County
Transportation by air	0.00	0.64 [c]
General merchandise stores	0.11 [c]	0.74
Engineering and management services	0.11 [c]	0.71
Business services	0.12 [c]	0.31
Trucking and warehousing	0.15 [c]	0.25
State government	0.29	0.97
General building contractors	0.32	0.30 [a]
Real estate	0.35	1.15
Miscellaneous retail	0.37 [c]	0.84
Transportation services	0.39	0.57
Health services	0.43	1.29 [c]
Hotels and other lodging places	0.44	0.29
Personal services	0.44 [c]	1.27
Railroad transportation	0.45 [a]	9.86 [a]
Eating and drinking places	0.45	1.05
Electric, gas, and sanitary services	0.49	0.49 [a]
Amusement and recreation services	0.52	0.76
Insurance agents, brokers, and services	0.52	0.65
Construction	0.52	0.45
Special trade contractors	0.57	0.51
Wholesale trade	0.58	0.63
Heavy construction contractors	0.66	0.41 [a]
Social services	0.68	2.26
Auto repair, services, and parking	0.68	0.76
Building materials and garden equipment	0.77 [b]	0.55
Miscellaneous repair services	0.79 [c]	0.75
Membership organizations	0.85	2.00
Apparel and accessory stores	0.87 [c]	0.73 [a]
Printing and publishing	0.88 [c]	0.55

Notes: Data for 2000 unless noted; a: 2000 data unavailable, 1999 data reported; b: 1999-2000 data unavailable, 1998 data reported; c: 1998-2000 data unavailable, 1997 data reported
Source: Consultant calculations using Place of Work Earnings Data from U.S. Bureau of Economic Analysis, Regional Economic Information System

2.3 Transportation Characteristics

Roadway Facilities

US 2 is the most important east-west highway in northern Montana. The two-lane facility traverses the entire state at a distance of 25 to 60 miles south of the Canadian border. US 2 is the primary, and in many places the only, option for passenger vehicles and trucks moving east-west in the northern third of the state.

Within the study region, US 2 links the communities of Havre, Lohman, Chinook, Zurich, and Fort Belknap, and runs just south of Harlem. Table 10 shows traffic volumes in the corridor. Most traffic in the

corridor is local – a recent license plate survey shows 59 percent of corridor vehicles registered in Hill and Blaine Counties, and another 9 percent from surrounding north-central Montana counties.[24] Approximately 27 percent of corridor vehicles are long-distance travelers (vehicles registered in Montana counties not on US 2 or registered out of state).

Table 10: Corridor Traffic Volumes

Segment	2002 Average Daily Traffic Volume	Percent of Commercial Trucks
Havre to Chinook	2,890	9.3%
Chinook to Ft Belknap	2,330	9.6%

Source: Montana Department of Transportation

US 87 joins US 2 just west of Havre, and runs southwest 110 miles to Great Falls. The nearest Interstate access is at the I-15/US 2 junction near Shelby, approximately 100 miles west of Havre.

A number of two-lane, paved roads intersect US 2. These roads are used by a variety of vehicles including trucks, farm equipment, cars, and recreational vehicles. Secondary 232 and Secondary 233 intersect US 2 at Havre and continue north to the Canadian border at the ports of Wild Horse and Willow Creek, respectively. Secondary 234 runs south from Havre to Rocky Boy, and Secondary 240 runs south to Cleveland. At the eastern end of the study area, Secondary 241 runs north to Harlem and to Turner on the Canadian border. Numerous unpaved roads also intersect US 2 in the study area.

International Trade

There are three Canada Ports of Entry in Blaine and Hill Counties: Willow Creek and Wild Horse are north of Havre, and Turner is north of Fort Belknap. Paved roads lead to the border crossings at Turner and Wild Horse (Secondary 241 and Secondary 232, respectively); the road to Willow Creek is gravel for the last 8 miles south of the border. None of the three ports offer 24-hour service. Traffic at all three crossings is light, as shown in Table 11, and lower than levels seen in the early 1990s.

In Blaine and Hill Counties, Turner is the only port of entry with significant commercial trade, handling approximately 24 commercial vehicle crossings per day and $4 million in annual trade. Imports at Turner (primarily fertilizer and agricultural equipment) are more than ten times exports. Trade through Turner is dwarfed by Montana's primary port of entry at Sweet Grass on I-15. Truck volumes at Sweet Grass are 35 times higher than those at Turner, as shown in Table 11.

[24] License plate survey conducted by David Evans and Associates on a Wednesday in July 2002 at the Indiana Street intersection in Chinook.

Table 11: Cross-Border Traffic in North-Central Montana

	2000 Daily Traffic		2001 U.S.-Canada Truck Trade ($1000)		
Port of Entry	Commercial	All	Exports	Imports	Total
Turner	24	100	359	3,665	4,025
Wild Horse	0	90	n/a	n/a	n/a
Willow Creek	6	30	n/a	n/a	n/a
Sweet Grass	858	2160	3,469,136	3,418,846	6,887,982

Source: MDT TranPlan 21; Transborder Surface Freight Dataset, U.S. Bureau of Transportation Statistics

Railroad Facilities

A major BNSF rail line runs parallel to US 2 through the study area. The line is the primary rail facility linking Pacific Northwest ports such as Seattle and Portland with Midwestern population centers and switching yards. As such, train volumes are quite heavy: approximately 35 trains per day pass through Havre, Chinook, and Harlem. A small spur line runs southeast to Big Sandy from Pacific Junction, just west of Havre. The nearest intermodal facility with trailer and container lift service is 100 miles west at Shelby.

While the vast majority of rail traffic passes through the study area, the BNSF line also transports locally grown grain crops. Table 12 lists the grain terminals located in the study area along with the facility operator, grain capacity, and train capacity.

To maximize rail operational efficiency, BNSF has recently been consolidating grain terminals at facilities that can handle longer trains. These facilities are able to rapidly load grain onto 110-car trains, minimizing time spent switching and assembling trains and serving smaller terminals. To farmers, this consolidation may require a longer highway trip to reach an elevator. (See discussion in Section 3.)

Table 12: Study Area BNSF Grain Elevators

Owner	Location	Capacity (bushels)	Track Capacity (cars)	Grains Handled
General Mills Operations	Havre	450,000	52	wheat, barley, oats, canola
Columbia Grain Inc.	Chinook	750,000	52	wheat, barley
Farmers Union Oil Co.	Chinook	55,000	4	barley
ADM/CHS LLC	Havre	511,000	110	wheat
ADM/CHS LLC	Havre	240,000	110	wheat
ADM/CHS LLC	Havre	258,000	110	wheat, barley
Columbia Grain Inc.	Harlem	620,000	115	wheat, barley

Source: BNSF Grain Elevator Directory

Amtrak passenger rail service also runs on the BNSF track. The "Empire Builder" train runs daily from Chicago to Seattle along the Hi-line, stopping at Havre; adjacent stops are at Malta to the east and Shelby to the west.

Airports

Havre City-County Airport is the only airport offering commercial service in the study area.[25] It serves as a base for the area's shipping, medical services, charter flights, and crop dusting. Several other smaller airports serve primarily as bases for local general aviation traffic and for local crop dusters.

Commuting Patterns

The Census journey to work data provides information on the extent of commuting to and from study area communities. Table 13 shows that 5.4 percent of workers living in Blaine County (147 people) travel to Hill County for work. Two percent of Hill County workers (143 people) commute in the opposite direction to Blaine County. A small number of people use the study segment for longer commutes, including Blaine County residents driving to Great Falls. However, more than 90 percent of study area residents work in the county where they live.

Table 13: Commuting Patterns to and from Hill and Blaine Counties, 2000

Top 5 Workplace Destinations of Study Area Residents				Top 5 Residence Counties of Study Area Employees			
Residence County	Workplace County	Number	Percent of workers by residence county	Residence County	Workplace County	Number	Percent of workers by workplace county
Blaine	Blaine	2511	91.3%	Blaine	Blaine	2511	91.7%
Blaine	Hill	147	5.4%	Hill	Blaine	143	5.2%
Blaine	Cascade	16	0.6%	Phillips	Blaine	44	1.6%
Blaine	Phillips	15	0.6%	Cascade	Blaine	10	0.4%
Blaine	Yellowstone	8	0.3%	Gallatin	Blaine	10	0.4%
Hill	Hill	6976	95.1%	Hill	Hill	6976	93.6%
Hill	Blaine	143	2.0%	Chouteau	Hill	209	2.8%
Hill	Liberty	47	0.6%	Blaine	Hill	147	2.0%
Hill	Chouteau	36	0.5%	Liberty	Hill	30	0.4%
Hill	Cascade	24	0.3%	Cascade	Hill	27	0.4%

Source: US Census Bureau

Census journey to work data at the place level suggests that Fort Belknap and Chinook residents are more likely to travel on US 2 to reach work compared to Havre residents. One-third of workers living in Chinook (203 people) are employed outside the town, and 15 percent of Chinook workers (89 people) leave Blaine County for work. It is assumed that most drive to jobs in Havre. Nearly 60 percent of workers living in Fort Belknap leave that town for jobs, although a much smaller fraction (7 percent) leave the county for work.

[25] Havre's commercial air service is subsidized through the Federal Essential Air Service Program.

Table 14: Commuting Patterns by Residence City, 2000

	Work Outside Place of Residence		Work Outside County of Residence	
Place of Residence	Percent	Number	Percent	Number
Havre city	29.6%	1,305	4.4%	194
Chinook city	33.8%	203	14.8%	89
Fort Belknap CDP	59.7%	228	6.8%	26

Source: US Census Bureau

Table 15 shows the percent of workers who commute longer than 30 minutes. The vast majority of those living in towns along the study segment have a commute time less than 30 minutes. Consistent with the data presented above, Chinook and Fort Belknap residents are more likely to have long commutes than Havre residents.

Table 15: Travel Time to Work

Place of Residence	Workers with Commute Time Less Than 30 Minutes
Blaine County	82%
Hill County	90%
Havre	94%
Chinook	87%
Fort Belknap CDP	88%

Source: U.S. Census Bureau

3 ECONOMIC GROWTH AND TRANSPORTATION LINKAGES

This section describes the economic growth initiatives in the study area and their relationship to transportation improvements, with a goal of assessing the potential regional economic benefits that would accrue from US 2 improvements. Both current initiatives and past failed initiatives are considered, and are grouped into six broad sectors: tourism, agriculture, manufacturing, energy, retail/service, and public sector. As outlined in Section 1.3, the evaluation process involves first identifying the initiatives and considering how each relies on the transportation system, then assessing qualitatively the relationship between the initiatives and major capacity improvements (such as additional through lanes) to the US 2 segment. As part of this process, we also identify other types of roadway improvements that can foster continued economic vitality and economic development in the study area.

3.1 Tourism

Local economic development officials note the potential to significantly increase tourism in the study area economy and the reliance of tourism on a good transportation infrastructure. Hill and Blaine Counties and the Fort Belknap Indian Reservation contain a number of historical, cultural, and natural resource attractions. In addition, the proximity of Glacier National Park to the west on US 2 means that the study area experiences relatively high volumes of pass-through tourism traffic, particularly during the summer months. Several planned initiatives aim to capture and induce additional visitors to the area.

Tourism has been experiencing a mix of growth and decline in the study area over the last decade. In government employment and earnings statistics, the "tourism industry" comprises three sub-sectors: eating and drinking places, hotels and lodging places, and amusement and recreation.[26] Table 16 shows the growth in earnings for the tourism sub-sectors during the 1990s. Growth appears particularly strong in the amusement and recreation services sub-sector, but this is due primarily to the legalization of video gaming machines. Earnings from eating and drinking places rose slightly over the last decade in Hill County, but fell in Blaine County. Earnings from hotels and lodging places fell during the 1990s in Hill County.

Table 16: Changes in Earnings from Tourism Industries

	Hill County			Blaine County		
	1990 earnings	2000 earnings	% change	1990 earnings	2000 earnings	% change
Eating/drinking places	$5,885	$6,438	9%	$719	$651	-9%
Hotels/lodging	$965	$778	-19%	n/a	$275	n/a
Amusement/recreation	$765	$2,080	172%	$292	$307	5%

Source: Bureau of Economic Analysis, Regional Accounts Data, Local Area Personal Income
All figures adjusted with BEA 1996-based implicit price deflators

[26] Some activity in these sub-sectors does not involve tourism, such as local resident spending on eating and drinking places. Government statistics do not allow a more refined definition of the tourism industry.

A state-sponsored study of tourism in Hill County found that approximately 198,000 nonresident travel[27] groups (approximately 500,000 individuals) passed through Hill County in 1996, spending an average of $40 per travel group in the county and $431 per travel group throughout the state.[28] Additional findings from the study include:

- Over three quarters of the visitors (78 percent) traveling through Hill County had visited Montana before.
- The top choices of accommodations for visitors passing through Hill County were hotel/motel (58 percent), campground (57 percent), and the home of a friend or relative (15 percent).[29]
- The six most common home locations for visitors to Hill County were Minnesota, Washington, Wisconsin, Alberta, California, and North Dakota.
- Sixty-eight percent of visitors to Hill County consulted information sources prior to their trip, with the most frequently used sources of information as AAA (33 percent), travel guidebooks (27 percent), and national park brochures (27 percent).

Tourism Opportunities

"Havre Beneath the Streets". This attraction offers visitors a glimpse into the rowdy early history of the cowboy, bootlegging and railroad town that became Havre. Many of Havre's businesses were first located in what could be termed an underground mall, developed some 100 years ago. Visitors can view this economy under the streets, with recreations of the saloons, barbers, and restaurants. Havre Beneath the Streets is the city's most visited historical attraction, with current visitation at 9,800, though this represents a decline from when the attraction first opened in 1994 and received 14,000 visitors. Most visitors are tourists from out of town. This attraction recently combined to also include the Railroad Museum**.**

Bear Paw Battlefield. This historic battleground is part of the Nez Percé National Historic Park and managed by the National Park Service. Located 16 miles south of Chinook via Secondary 240, the Battleground is the final stop on the Nez Percé National Historic Trail, a 1300-mile path that starts in Joseph, Oregon and follows the path of the non-treaty Nez Percé bands during the 1877 Campaign. The area has a self-guided walk, picnic tables, and restrooms. Information and exhibits are available at the Blaine County Museum in Chinook.

Current visitation to the site is 6,328 with the possibility that this will increase under a long-term management plan. As the 1997 Nez Perce National Historic Park and Big Hole National Battlefield General Management Plan recommends, visitor facilities and operation support will be provided at Bear Paw Battlefield. Initial concepts for the new facility include a museum, interpretive center, bookstore, a parking lot, and wayside exhibits. In addition, the trail system will be expanded to link to this new facility. The National Park Service commissioned a feasibility study of visitor facilities at the Battleground and has recently hired the site's first full-time ranger.

Bison Indian Burial Archaeological Site (Wahkpa Chu'gn). Located along US 2 and nestled in the shadow of the Bear Paw Mountains, Wahkpa Chu'gn is the most extensive and best preserved buffalo

[27] Non-resident is defined by the Institute for Tourism and Recreation Research as those who travel within Montana but do not maintain permanent residency in the state.
[28] Grant, Paul L., Nickerson, Norma P and Black, Rita J. "Montana Counties Explore Tourism Potential." Institute for Tourism and Recreation Research. http://www.forestry.umt.edu/research/MFCES/programs/itrr/research/ctap97.pdf
[29] Figures total more than 100 percent because survey respondents were allowed to choose more than one accommodation type.

bone deposit in the northern Great Plains. Visitation to the site has been increasing since 1997, and is currently at 1,716. The operators recently received a $40,000 grant to enhance the site, with planned improvements including placing interpretive panels in the exhibit houses and interpretive signage on the hill before descending to the site.

The operators of the facility hope to attract at least 5,000 visitors annually in the next few years. However, a review of a comparable attraction in Canada suggests that if supportive infrastructure and marketing were in place, the site in Havre could become a major tourist destination. The Head-Smashed-In Buffalo Jump in Alberta, Canada is a designated UNESCO World Heritage Site that features an impressive $10 million Interpretive Center built into a sandstone cliff. The site attracts 90,000 visitors annually, totaling one million visitors since it first opened in 1987. The potential for this level of visitation at Havre should be viewed in the context that the site offers the unique opportunity to view remains in their original setting. Indeed, anecdotal evidence from visitors to both the Canadian and Montana sites suggests that the remains at Havre are more impressive due to this feature.

Fort Assiniboine. One of the most strategic military posts of the old west, Fort Assiniboine was built in 1879-80. The fort was the largest military post west of the Mississippi and considered one of the most important. At its peak, about 600 infantry and cavalry troops were stationed at the fort.

Based on a review of visitation at comparable forts in the region, there is opportunity for increased visitation at Fort Assiniboine. Although it currently receives a limited number of visitors per year (500-1000), there are efforts to develop amenities at Fort Assiniboine similar to those of other forts in the area, which enjoy much higher levels of visitation. Fort Union Trading Post in North Dakota receives almost 20,000 visits annually and Fort Walsh in Canada and Fort Benton in north central Montana receive similar levels of visits. Developments at Fort Assiniboine that would support increased visitation include an interpretive center, daily tours, and a parking area.

Heritage Center, Havre. The historic and cultural hub of Hill County and the Hi-Line, it houses the H. Earl Clack Museum and hosts numerous cultural activities

Beaver Creek Park. South of Havre, Beaver Creek Park is the largest county park in the US. Visitors can fish, camp, hike, and cross-country ski. The park has 150 campsites. During the peak season, the park has approximately 500 visitors per day (visitation statistics are not officially tracked), with most visitors staying between 2 and 3 nights. Park revenue in 2002 was $84,000, most of that coming from cattle grazing, cabin leases, and park/camping permits. According to the Park's Superintendent's Office, most visitors to Beaver Creek are on their way to Glacier National Park with a sizeable number of visitors coming from Canada. The Canadian visitors choose to cross into North Dakota and drive the Hi-Line route rather than Canada's Highway 1 because of the cheaper gas, diesel, and groceries (and no sales tax in Montana) and because the alternate Canadian route goes via the Saskatchewan/Alberta area, which is sparsely populated and somewhat desolate. There is also a youth camp in the Beaver Creek Park area, which hosts approximately 4,000 youth a year (mainly coming from in-state), as well as family reunions (with family members mainly coming from out-of-state).

Fort Belknap Indian Reservation. The reservation is working to develop tourism and a market for handcrafted Native American arts and crafts. The tribe recently opened a Tourism Cultural Center at Fort Belknap Agency. Annual visitation in 2002 was just over 1,200. A 1995 survey found that reservation residents would prefer development and/or promotion of tourist attractions such as powwows, a museum

and art gallery, buffalo jumps, fishing, picnic areas, and mountains near the communities of Lodgepole and Hays.[30] Some specific reservation attractions include:

- Snake Butte Tour – The Snake Butte landmark is sited on the northern end of the Fort Belknap Reservation and has been used by Native Americans for over 2,000 years. The area is also home to a herd of approximately 300 wild buffalo managed by the tribes. Atop the Butte visitors can view prehistoric petroglyphs. The tribes have also developed the Snake Butte reservoir, which is open for fishing and other recreational purposes.
- Fort Belknap Ventures features handcrafted Native American arts and crafts. RV parking, showers, and picnic grounds are available. Staff provides tours of the Mission, Snake Butte, ancient tepee rings, and the tribal buffalo pasture.
- Antelope, bird, and gopher hunts are available (licenses and guides required).
- Mission Canyon/Natural Bridge, South of Hays located in the Little Rocky Mountains, is a scenic recreational canyon with picnic and camping areas. The Natural Bridge, Wilson Park, Devil's Kitchen, Needle Eye, and Kid Curry's Hideout are some of the most popular attractions here.
- Cultural events: The Hays Community Pow Wow is held annually during the summer in the Mission Canyon located in the Little Rocky Mountains. The Milk River Indian Days Pow Wow features Native American dancers and drummers combining culture, dance, and music.

With the Fort Belknap reservation situated on the eastern edge of the study area, and three other Indian reservations located along the Hi-Line, the area offers a unique opportunity for travelers interested in American Indian culture. At Fort Belknap, visitors can also enjoy an array of recreational activities, including fishing and hunting. The extent to which reservations can generate revenue is linked to the development of tourist attractions, facilities, and infrastructure, all of which support increased visitation.

Blaine County Museum. Located in Chinook, this museum includes Native American artifacts and early photographs of Nez Perce life, furnishings and reconstructions from pioneer days, and fossil remains found in the area.

Blaine County Wildlife Museum *(planned).* This Chinook facility will be unique in Montana, displaying the State's wildlife species in their natural habitat. The facility will include a gift shop featuring the work of Montana artists, carvers, and taxidermists.

Dinosaur digs. Some of the nation's best dinosaur fossil digs are located near Havre, both north and west of city within 18 miles of US 2. The dinosaur digs can bring in substantial revenue, with visitors paying approximately $950 to participate in a five-day dig. A larger dig is located at Malta, held in conjunction with a local museum. In addition to revenue from digs, tourists also spend money on souvenirs as well as goods and services, such as restaurants. There is opportunity for growth of this industry if strategically planned. With the construction of a major dinosaur museum at Fort Peck Lake, and the location of dinosaur digs extending west along US 2 to Malta and to Havre, there is potential to develop a tourism corridor that focuses on this attraction. A regional marketing approach that promotes this as a niche enterprise would support this development.

Lewis and Clark trail. Between 2003 and 2006, visitors will be retracing the steps of Lewis and Clark for the bicentennial celebration of the explorers' journey along the Missouri River. Montana's Institute for

[30] Menning, Nancy Lee, *Opinions About Tourism Development on the Fort Belknap Reservation: A Survey of Residents*, Published by the Institute for Tourism and Recreation Research, June 1995.

Tourism and Recreation Research has estimated that the state could receive up to 8.9 million additional visits during the celebration. The historically significant Fort Benton is located one hour from the study area. There is potential for the local economy to benefit from this influx of visitors and spending. With cultural and heritage tourism on the increase in the US, as well as the desire to enjoy pristine natural environments, these benefits may extend beyond the immediate impacts associated with the bicentennial, creating long term awareness of the area's attractions.

Transportation Improvements Supporting Tourism

Local officials have identified the following transportation investments that could support development of tourism in Hill and Blaine Counties:

- In Blaine County, there is a plan to develop a tourism loop between Fort Belknap reservation, Bear Paw Battlefield, and the towns of Chinook and Havre. Tourists driving the loop would exit US 2 at Fort Belknap, drive south on Route 66 through the reservation, go west on what is currently a gravel road to Cleveland where the battleground is located, and then loop back up to US 2 on Secondary 240. In order to create a loop with consistent road characteristics, county officials have cited the need to pave the 30-mile gravel section between routes 66 and 240.
- The McClelland Ferry carries tourists across the Missouri River between April and October. The site is only accessible by gravel roads that connect to Chinook in the north via Cleveland and to Lewistown in the south via Winifred.[31] Blaine County officials would like to see the portion between Cleveland and the ferry site paved. In conjunction with the Fort Belknap-Cleveland loop, this would provide enhanced access to the area.
- There is discussion of marketing a regional tourism package that would use both road and rail transportation to provide access to the major attractions in north-central Montana. For example, tourists could take Amtrak to Havre, where they would first enjoy the town's historical and archaeological sites. Buses could then be used to carry tourists to sites such as the Fort Belknap Reservation, the Missouri River at Fort Benton, dinosaur digs northwest of Havre, and possibly Glacier National Park.
- There is a need for better signage on US 2 at Chinook to identify the turnoff and route to Bear Paw Battlefield.
- The operators of the Wahkpa Chu'gn bison kill site commented on the need for additional signage along US 2. Currently, there are two signs on the highway a few blocks from the site for travelers coming from the east and west. Ideally, the operators would install signs every 50 miles east from Havre to the North Dakota border and west from Havre to Glacier. However, each sign costs approximately $600 and funding is not yet available.

Relationship Between the Tourism Sector and Improvements to US 2

The tourism industry relies on a transportation network that provides accessibility and safe levels of service to travelers. The study area road network – US 2 and its feeder roads – are critical elements supporting the flow of tourists to the area's attractions as well as to other regional destinations. Given the fairly high level of service on US 2, it does not appear that major capacity improvements to the US 2 segment would lead to significant growth in the local tourism sector at this time. However, other improvements (such as better signage, turning lanes, and safety improvements) can help to support tourism activity in the study region, with concomitant economic benefits.

[31] The road between the ferry site and Winifred is an all weather gravel road that provides adequate service.

In the future, a rise in tourism visits to Hill and Blaine Counties and the Fort Belknap Indian Reservation would increase passenger vehicle traffic on the US 2 study segment. Currently, an estimated 10,000 to 15,000 tourists per year visit the area's attractions, based on visitation figures from the most popular destinations. With appropriate investment and development of amenities, Fort Assiniboine could potentially increase its current annual visitation of 500 – 1000 tourists to a level that is comparable with other forts in the region, such as Fort Union Trading Post in North Dakota, which receives almost 20,000 visits annually. In addition, a comparison of visitation at the Wahkpa Chu'gn bison kill site (1,716 visits annually) with a similar site in Alberta called Head-Smashed-In (90,000 visits annually) suggests that if infrastructure and marketing funding were available, the Havre site could substantially increase visitation. Treating the attractions in the study area as part of a regional tourism sector strategy that links to other opportunities along the Hi-Line, such as the dinosaur digs in Malta and the Interpretive Center being developed at Fort Peck Lake, could also boost the long-term potential for increased visitation.[32]

Based on visitation to comparable attractions in Montana and neighboring states and provinces, coupled with plans for further development of local attractions and the potential for exposure during the Lewis and Clark bicentennial, we believe the study area could double tourism visits in 10 to 15 years. It is important to note, however, that there would be a need for significant public and private sector development to support such an expanded tourism sector, including an increase in hotel rooms.

It is difficult to estimate the effect of 10,000 to 15,000 more tourist visitors on US 2 traffic levels. Certainly most visitation occurs during the summer months. Not all new visitors would necessarily generate new trips on the study segment, particularly if a new visitor would already be passing through (e.g., on a trip to Glacier National Park) or if a new visitor does not travel east of Havre. Tourists who stay in Havre and visit Fort Assiniboine, the Wahkpa Chu'gn Buffalo Jump, and Havre Beneath the Streets might make only one trip on the study segment. But it is likely that a significant portion of new visitors would use Havre or Fort Belknap as a regional base and make multiple trips on the US 2 study segment.

A number of area residents have cited the possibility of US 2 improvements inducing more pass-through travelers to use the Hi-Line, rather than alternate routes across the state such as I-90. While we have not attempted to estimate any such traffic diversion, we discuss some of the factors that might influence traffic diversion in Section 3.7 below.

3.2 Agriculture

The Hi-Line region has traditionally relied on agriculture as a source of employment and income, particularly wheat and cattle. That reliance continues today. Wheat is the top agricultural product in the study area, generating sales in 1997 of $51.4 million in Hill County and $20.3 million in Blaine County, as shown in Table 17.[33] Cattle and calves are the second largest agricultural commodity in the study area in terms of sales. Cattle ranching is more intensive in Blaine County than in Hill. Blaine County's 1997 sales of cattle and calves were $20.2 million, on par with the county's wheat sales. Other important agricultural commodities produced in the study area include barley and hogs and pigs.

[32] It should be noted that currently no such strategy exists and it that it is not the intent of this study to develop one.
[33] 1997 Census of Agriculture.

Table 17: Top Five Agricultural Commodities by Sales, Hill and Blaine Counties (1997)

	Hill County		Blaine County	
Commodities	Sales ($1000)	State Rank	Sales ($1000)	State Rank
Wheat	51,417	2	20,259	12
Cattle and calves	8,647	38	20,220	15
Hogs and pigs	2,020	6	856	10
Barley	1,876	16	2,095	14
All other grains (rye, drybeans, etc)	821	4	-	-
Hay, milage, field seeds, grass seeds	-	-	2,448	15

Source: 1997 Census of Agriculture.

More recent data on agricultural cash receipts confirms the relative importance of crops versus livestock in Hill and Blaine Counties. The sale of agricultural products in Hill County generated $53.8 million in receipts in 2000, 76 percent from crops and 24 percent from livestock. In Blaine County, 2000 agricultural sales produced $46 million in cash receipts, 40 percent from crops and 60 percent from livestock.[34]

Conventional Wheat

The Golden Triangle region of Montana (bounded by Havre, Great Falls, and Cut Bank) is one of the most productive wheat-growing regions in the world. Hill County's substantial wheat sales place it second in Montana and eighth in the U.S. Approximately 80 percent of wheat grown in the study area is spring wheat, with most of the rest winter wheat and a small percentage of durum wheat.[35] Because the study region is already so heavily vested in conventional wheat production, this crop does not offer the potential for significant economic growth like most of the other initiatives described in this section. However, it is worth considering the impact of US 2 improvements on wheat farming because any significant decline in this sector would have serious repercussions for the entire regional economy.

Virtually all grain grown in the study area is transported by truck from the field to grain elevators on the BNSF rail line, and then by rail out of Montana. As shown in Table 18, the vast majority of Montana grain is shipped west, with most going to Pacific Northwest ports for export. Small amounts of wheat from Hill and Blaine County may be trucked to nearby destinations, such as a pasta plant in Great Falls. Some local wheat growers also report transporting their crop by truck to more distant rail terminals (including those in Idaho) in order to receive more favorable shipping rates.

[34] U.S. Bureau of Economic Analysis, Regional Economic Information System.
[35] USDA, National Agricultural Statistics Service.

Table 18: Destination of Montana Grain Crops by Transport Mode, 2000

	Shipment Volume in Bushels			
Destination	Rail	Truck	Total	Percent
Pacific NW	17,145,522	3,268	17,148,790	67%
California	1,940,198	0	1,940,198	8%
Idaho	4,156,531	186,314	4,342,845	17%
Other Western States	1,288,743	22,202	1,310,945	5%
Eastern States	138,882	0	138,882	1%
Montana	364,135	435,330	799,465	3%
Canada	0	9,007	9,007	0.04%
Total	25,034,011	656,121	25,690,132	100%

Source: National Agricultural Statistics Service, USDA

Local grain elevators are located in Havre, Chinook, and Harlem. Grain transport trucks often use the US 2 study segment to reach the elevators. Conflicts between passenger vehicles and these trucks on US 2 are reportedly acute during the fall harvest season, but also occur throughout the year as farmers store grain until they see a market advantage to sell. Because of inadequate offset of US 2 from the railroad, grain trucks turning off US 2 are sometimes forced to stack in the through travel lane while waiting for a train to pass. While these safety problems should be addressed, our interviews suggest that the current condition of the US 2 study segment does not appear to adversely affect the profitability of wheat farming.

One important trend that may affect future wheat transport on the study segment is the consolidation of grain elevators. All along the Hi-Line (and in other parts of the West), railroads have recently been shifting to the use of fewer and larger grain loading facilities that can accommodate 110-car unit trains. Other elevators are being abandoned or used less frequently. The elevator at Chinook, for example, was previously a major transfer point for wheat but now handles only smaller volumes of specialty crops (e.g., canola, flax, sunflowers, lentils, peas). One effect of this consolidation has been an increase in grain truck traffic on US 2, with shipments that previously went to Chinook now moving to Havre or Harlem.

Most wheat farmers either use their own trucks to carry crops to elevators or hire out the transport service. Either way, longer truck shipments directly reduce farmers' profits. Some business leaders in the study region expect this consolidation to continue, possibly resulting in just a single elevator between Shelby and Malta (at Havre). BNSF officials have suggested that no additional elevator consolidation will occur in the near future. Any additional consolidation of grain elevators in Hill or Blaine Counties will further increase truck traffic on the study segment.

Higher Value Crops

Average annual rainfall in the study area is just 12 inches. Although considerable irrigation occurs in the Milk River Valley immediately adjacent to US 2, options for crop diversification in much of Hill and Blaine Counties are limited. Nonetheless, there is potential for economic growth through the production of higher value crops. One is organic wheat. Organic wheat can command a price per bushel two- to three-times that of conventional wheat, although crop yields are lower and it requires farmers to go three years without pesticides before they can claim the price premium. Another alternative is "identity-tagged" wheat. Montana wheat has a very low percentage of chaff and rocks and can be sold for a higher price if it

is kept separate from typical wheat. Other farmers in the region are growing high-protein wheat, which also sells for a higher price.

These higher value grains must be isolated from conventional grains and therefore cannot usually be transported by rail. Thus, an increase in the production of high-value grains would likely lead to more trucks on the US 2 study segment. There has been some discussion of establishing a co-op and central collection point for identity-tagged wheat, possibly in Havre.

Oil seeds present another possible opportunity for crop diversification and higher value. Presently a relatively small amount of cropland in the study area is devoted to oil seeds such as mustard seed, canola, flaxseed, and rapeseed. Demand for oils such as canola and safflower is growing as consumers switch to diets with lower saturated fats. With the possible development of a biodiesel production facility (discussed in Section 3.3 below), local demand for oil seeds may increase significantly.

Some in the industry have noted that the ability of farmers to switch to higher value crops and livestock depends in part on being able to secure reliable truck transport for their products. Due primarily to the remoteness of the study segment and the relative lack of incoming freight shipments, truck transport is sometimes more difficult to obtain and higher priced as compared to competing regions.

Cattle

There is extensive cattle ranching in the study area, particularly in Blaine County. Like wheat farming, cattle ranching is less of a growth opportunity than an economic mainstay for the region.

Cattle ranchers sell their herds either at a local auction (such as the one in Chinook) or in advance to a roving buyer. Cattle are then transported exclusively by truck to out-of-state finishing lots where they are fattened for slaughter. During the peak-season of September to November, as many as 15 trucks leave Chinook for these lots every Friday. Smaller numbers of cattle trucks leave the region throughout the year. Most of the finishing lots are 700 to 800 miles away in Colorado and Nebraska. Cattle ranchers in Hill and Blaine Counties pay transport costs that are significantly higher than ranchers located closer to slaughterhouses. The cattle slaughtering industry is well established in Colorado and Nebraska, and efforts to establish slaughtering facilities closer to Montana have been unsuccessful. Because cattle are heavier after finishing, it makes economic sense to locate finishing lots close to slaughterhouses and thus minimize the transport of fattened cattle.

Cattle ranchers report that their profitability is primarily dependent on three factors: rainfall, the market price for cattle, and the distance (price) required for shipment to finishing lots. Cattle trucks do come into conflict with other vehicles on US 2, particularly during peak season. However, the current state of US 2 does not appear to hinder economic growth in cattle ranching, an observation confirmed by individuals involved in the industry locally.

Like wheat, organic products offer the potential for greater livestock returns. There is growing demand for organically raised Montana beef. An organic beef rearing facility is currently operating in Malta and experiencing great demand for its products. Agricultural experts in the study area view this as a potential growth opportunity.

Failed Initiatives in the Agricultural Sector

There have been a number of efforts in the past to establish new agriculture-based facilities in the study area and promote diversification of crops and livestock.

- *Premium Pork* – With an estimated cost of $4.2 million, this initiative to raise high quality pigs for consumption would have created jobs for approximately 31 employees. Located 35 miles north of Havre, the initiative failed due to an inability to secure adequate investment capital.
- *Alfalfa Processing Plant* – The proposed plant was to be located at Chinook and provide 20 jobs. The $1 million project failed due to a lack of investment capital.
- *Montana Dairy Corporation* – This dairy production facility was proposed for Havre. The initiative did not succeed due to a lack of operating capital. Montana Dairy Corporation was the employee-owned company that took over an earlier dairy operation called Vita Rich, which suffered from similar financial hardships. Transportation challenges did contribute to the Montana Dairy Corporation's inability to remain profitable because the firm was isolated from larger markets and could not develop new markets profitably.

Summary of Relationship Between the Agricultural Sector and Improvements to US 2

The agricultural sector in the study area relies heavily on US 2 to transport crops, livestock and supplies. Those involved in farming, ranching, and transporting agricultural products report safety and operational problems on the study segment due to conflicts with other types of vehicles and inadequate offset from the railroad. These problems have been exacerbated by the recent consolidation of grain elevators.

A number of external factors affect the profitability of farming and ranching, including rainfall and commodity prices. A rise in transport costs can also affect profitability, although our interviews suggest that transport costs in the study area are driven primarily by shipping distance. The current conditions on the US 2 segment do not appear to be adversely affecting the profitability of study area agricultural producers. Therefore, we believe major capacity improvements to US 2 are unlikely to significantly affect the economic outlook for farming and ranching in the study area.

Several future developments have the potential to increase agricultural truck traffic on the US 2 study segment, such as possible continued elevator consolidation, growth in higher-value varieties of wheat, and growth in oil seed farming. If these developments occur, the safety and operational problems for agricultural vehicles on US 2 will get worse and could potentially affect the economic viability of the local agriculture sector in the future.

Although major capacity improvements to the US 2 segment may not be justified based on the needs of the agricultural sector alone, other improvements appear to be in order to address some of the reported safety and operational problems. For instance, widening shoulders and improving turning movements can help to minimize conflicts with other vehicles and enhance agricultural movements to and from grain elevators. If there is continued consolidation of the grain elevators, these improvements can help to ensure the economic viability of the region's agricultural sector.

3.3 Manufacturing

With only about 150 employees throughout Hill and Blaine Counties, manufacturing is the smallest major industry sector in term of jobs and also experienced the largest percentage employment decline (-35 percent since 1990). Despite its relatively small presence, however, manufacturing is an important potential growth sector for the study area. Manufacturing that makes use of the region's resources (especially agricultural products) to create higher-value products locally offers a promising opportunity for economic development. Several current manufacturing ventures in the study area have the potential to expand.

Big Equipment Company

Located in Havre, Big Equipment Company was incorporated in 1996 to sell reconditioned farm equipment. More recently, the company expanded its operation to sell rebuilt Big Bud Tractors to companies in the construction industry and has developed an inventory of the tractors, which are no longer manufactured. In addition, the company's ability to rebuild and provide replacement parts at affordable prices has allowed for the creation of a potentially lucrative market niche. The company has grown from one full-time employee to its current size of nine full-time employees.[36]

In terms of accessing markets and supplies, the firm is dependent on the highway network, with 95 percent of incoming supplies and outgoing products shipped via road on a weekly basis. Markets are located throughout the United States, primarily in the following wheat-growing states: the Dakotas, Kansas, Colorado, Oklahoma, Texas, Idaho, California, Oregon, and California.

For safety reasons, MDT policy states that flag cars must travel before and behind vehicles more than 12.5 feet wide on two and four lane highways within Montana. Flag cars are required before but not behind oversized vehicles on the Interstate. Consequently, the firm reports paying an estimated $100,000 to $200,000 more per year in transport costs for an additional escort vehicle because it is not located near an Interstate.[37]

Railroad transportation is not an option for the company because rail does not provide enough access to some of the more remote markets, and because rail is not an affordable option for small volumes of shipments. However, another option, which the firm has considered in order to reduce its transportation costs, is to relocate closer to an Interstate, with Billings cited as a possible new location. Transportation improvements to US 2 that would support the firm include widening US 2 lanes and having turn off lanes in higher traffic areas.

Biodiesel Production Facility

A Missoula-based company (Sustainable Systems LLC) is currently considering development of a biodiesel production facility in north-central Montana, possibly in Havre. Biodiesel can be used as a substitute for conventional diesel in most heavy-duty engines, resulting in lower air pollution emissions. Demand for biodiesel is growing rapidly, particularly among public sector fleets in urban areas. Biodiesel production is relatively clean, and results in useful byproducts such as glycerin.

The proposed facility would have the capacity to manufacture 10 million gallons of biodiesel per year, which would require 300,000 acres of locally grown oil seeds. The proposal in the short term (one to two years) calls for seeds to be trucked to an existing crushing facility in Culbertson, Conrad, or Great Falls. The oils would then be trucked to the biodiesel manufacturing facility, possibly located in Havre. If the project proves successful, a new seed crushing facility may be built in Havre. Biodiesel could be transported to more distant West Coast and Midwest markets via the BNSF rail line, and BNSF has indicated an ability to transport the product. The proposed plant would employ approximately 20 people, mostly high salary chemical engineers. A seed crushing facility would create an unknown number of additional, lower-paying jobs.

[36] *Comprehensive Economic Development Strategy, 2002 Update*, Bear Paw Development Corporation of Northern Montana, June 27, 2002.
[37] Additional transportation costs based on 100,000 miles over the 2-lane highway section at an additional cost of $1 to $2 per mile

Because the location of the production facility is not yet known, it is difficult to estimate the traffic impacts of the initiative and how improvements to the US 2 study segment might benefit the initiative. Local economic development officials have indicated that the facility does not require US 2 improvements in order to move forward. If the production facility were located in Havre, the initiative would likely generate additional truck trips on the US 2 study segment. These trips would include shipments of oil seeds from fields to the seed crushing facilities (initially in Culbertson, Conrad, or Great Falls), and then from crushing facilities to the production facility. At full capacity, the required 300,000 acres of oils seeds would yield 4.3 million bushels, entailing at least 7,200 annual truck trips during the harvest season. An unknown number of additional truck trips would be required for farm operation. However, many of these additional truck trips would not be net additions to the roadway because they would merely supplant the carriage of other crops. In addition, many of these truck trips could be outside the study area.

GE Locomotive Engine Maintenance

A major General Electric (GE) locomotive maintenance facility is located in Havre. The company has hired approximately 50 employees in the last five years to help with the rebuilding and maintaining of engines for the BNSF Railroad. GE relies on the road network to bring in supplies (three tractor-trailers per day). Currently the facility is attempting to lower shipping costs by finding other industries to provide loads for trucking backhaul.

Enell

Enell is a maker of sports bras located in Havre. The company is fairly small with six employees. It operates as a mail order company and sends out products to customers via ground freight. The company noted that while its transportation costs seem reasonable, the reliability of ground freight shipments is an issue during winter and inclement weather.

Failed Initiatives

- *BioGold Composites, Inc.* – BioGold Composites was an initiative to manufacture straw particleboard in Rudyard, Montana. With an anticipated development cost of $20 million, the initiative would have created 70 jobs. While Rudyard is located approximately 40 miles west of the study segment on US 2, jobs at BioGold Composites could potentially have gone to Havre residents. Sales of wheat straw would have increased profits for Hill and Blaine County farmers. The initiative failed due to an inability to secure sufficient capital and a lack of demand for the product. Transportation infrastructure was not cited as contributing factor to the failure.
- *Wildcat Manufacturing* – Wildcat Manufacturing was a Havre-based company that made drilling rigs. It failed in part because of the overall decline in drilling activity in Northcentral Montana after 1980. Company operations were also impacted by the cost of transporting products to market.
- *Woods Power-Grip Company* – Woods Power-Grip is a specialized maker of vacuum lifters for materials handling. The company is currently located in Laurel, Montana, just west of Billings on I-90. Woods Power-Grip employs 85 workers and reports annual sales in excess of $7 million. Woods Power-Grip was previously located in Wolf Point, and in 1989 considered relocating to one of two locations: Havre and Laurel. According to the company president, Laurel was chosen over Havre for two reasons: employee desire for the amenities available in Billings, and a more attractive available building than the one considered in Havre. Location on a four-lane highway was reportedly not a factor in the relocation choice. Since moving, however, the company reports

obtaining better freight shipping rates by virtue of its location and feels that it would be difficult to currently operate in Havre because of this issue.

- *Water Chef* – An initiative to make drinking water coolers and small filtration systems in Hill County Industrial Park (west of Havre) failed due to an inability to secure customers and a lack of adequate operating capital. The project costs were estimated at $1.5 million, with the creation of 99 jobs anticipated. Although transportation costs were also cited as a constraint, the issue stemmed more from costs related to distance rather than US 2 conditions.

Summary of Relationship Between the Manufacturing Sector and Improvements to US 2

Our review of current and past manufacturing initiatives in the study area suggests the following:

- The current level-of-service of US 2 does not appear to have contributed to the failure of past efforts to introduce new manufacturing activity into the study region.
- Manufacturing firms located in Havre that ship supplies and products to and from Great Falls would not benefit from improvements to the US 2 segment.
- Some manufacturing ventures (such as Big Equipment Company) do reportedly suffer from the narrow roadway and related safety issues on the Havre to Fort Belknap segment of US 2. Safety and operational improvements to the segment may result in lower transport costs for these firms and improve their competitiveness.
- Growth of manufacturing initiatives might result in more trucks on the study segment, particularly those initiatives that use local agricultural products as inputs (such as the biodiesel facility). An increase in truck traffic will lead to more frequent conflicts between vehicles. If the reliability and safety of the relevant US 2 segment were to deteriorate significantly, this might hinder the future establishment or expansion of manufacturing industries in the study area.

Based on these findings, it appears that major capacity improvements to US 2 are unlikely to generate significant economic development in the manufacturing sector. Smaller-scale highway improvements (such as wider shoulders, turning lanes, safety improvements, etc.) may be needed to foster this sector's economic viability and to ensure the success of future ventures.

3.4 Energy

The abundance of certain natural resources in the study area creates opportunities for the development of energy-related industries. Activity in these industries is driven largely by energy prices, and the recent rise in natural gas and electricity prices has led to renewed interest in this sector.

Natural Gas Extraction

Exploration and production of natural gas has seen considerable growth in recent years in the study area. According to local economic development officials, nine new oil and gas-related companies have located in and around Havre within the past two years. Major gas fields run across Hill and Blaine Counties north and south of US 2, most located within 40 miles of the highway. The Tiger Ridge Complex, located on the north side of the Bear Paw Mountains, is the most important gas field in the study area and highest producing gas field in Montana. As Table 19 shows, Blaine and Hill Counties are major gas producers, ranked first and third in the State of Montana, respectively. Between 1990 and 2000, employment in the oil and gas extraction sub-sector increased seven-fold in Blaine County and nearly doubled in Hill

County.[38] However, it should be noted that there is significant volatility in the oil and gas industry and that most of the 1990-2000 increase occurred in the last few years of the decade.

Table 19: Montana's Top Natural Gas Producing Counties[39]

County	Gas Production (1,000 mcf)	Gas Wells
Blaine	17,076	61
Phillips	12,799	123
Hill	11,621	28
Fallon	7,842	46
Toole	4,639	5

Source: Montana Oil and Gas Conservation

The current upswing in the industry can be attributed to three factors:

- A rise in natural gas prices.
- Technological improvements that allow for more drilling options (thereby reducing the magnitude of any downturn that traditionally follows a "boom" cycle).
- The presence of EnCana, the largest independent oil and gas producer based in the United States. Currently one of the main producers in the area, EnCana's operations are directly linked to the increase in exploration and production activity.

The oil and gas industry is driven heavily by gas prices, and has historically followed boom and bust cycles. As such, this sector offers less opportunity for new economic growth. But like conventional wheat farming and cattle ranching, maintaining activity levels in the natural gas sector is important for sustaining the study area economy. Natural gas work requires support services that provide local jobs. Oil and gas drilling also involves importing labor for specialized tasks such as seismographic assessment, and the multiplier effects of these workers' purchasing patterns for local goods and services in the study area can be large.

Natural gas exploration and production relies on US 2 and its feeder road system to transport inputs (labor, machinery, and supplies) into and around the study area. Accessibility is an issue both for the gas and oil operators themselves and for the array of service providers who support these operators. Regional supply centers are located in Great Falls and Billings, in Williston, North Dakota, and in Calgary. All natural gas is piped out of the area.

Secondary Highways 233 and 232 provide key access to the fields located north and northwest of Havre. Fields in other locations, such as those north of Chinook and those south of Havre are accessed via gravel roads. According to representatives from the oil and gas industries, these gravel roads are well maintained and serve the companies' needs. Oil and gas trucks can cause substantial wear of roads, but the industries often assist with road maintenance needs such as supplying gravel.

[38] Calculated from suppressed ES 202 data, Montana Department of Labor and Industry
[39] Montana Board of Oil and Gas Conservation, 2000 Annual Review.

The needs of the oil and gas industries vary according to the development stage of the field. During the exploration period, there is a moderate level of trucking activity, as equipment is transported to the site. The initial drilling phase generates a high level of trucking activity to and from the field (up to 15 tractor-trailers per day). This activity drops once routine production begins (up to 5 tractor-trailers per day), though it continues throughout production. A production period can last as long as twenty years.

Representatives from the oil and gas industries report that roadway improvements to US 2 would enhance the ability of gas producers to transport goods and supplies safely. One of the difficulties reported by the industry is the variety of vehicles using US 2 and the large variance in speeds. Industry representatives recommended improvements for US 2 such as improved passing opportunities, wider shoulders, and improved intersections that would allow safer access onto and off of US 2. In addition, because gas production is a year-round, twenty-four hour activity, the industry could benefit from improved markings such as reflectors that would allow for safer nighttime and inclement weather driving.

Transportation improvements are unlikely to create growth in this industry, however. Natural gas exploration and production companies are equipped to reach remote well sites, even when road conditions are poor. Growth in this industry is almost entirely dependent on the available gas reserves and the market price for gas.

Wind Power

The Fort Belknap Reservation is currently exploring the potential to develop a wind power generation facility. The initiative would involve installing towers, turbines, generators, and distribution lines to produce wind power, which could then be used by the Reservation or sold. The Fort Belknap Reservation is currently preparing a grant application to the U.S. Department of Energy that will allow construction of a 150-foot tower to collect wind condition data for a feasibility study.

Because the initiative is still in its infancy, the location of the facility and its economic impacts are unknown. However, a similar initiative underway at the Fort Peck Reservation can provide an indication of how such an initiative might rely on and benefit from highway investments. During construction of the wind power facility at Fort Peck, it is estimated that ten combination truck loads will be required for each generator. The 120-foot turbine blades will be brought in by rail to the nearest transfer facility, and then carried on specialized trucks to the site. Improvements to a gravel road are required to provide better access to the site. Once operational, the Fort Peck wind power initiative will require periodic operation and maintenance visits, and could potentially provide five full time local jobs. Both the Fort Peck and Fort Belknap wind power initiatives would not significantly benefit from any improvement to US 2.

Summary of Relationship Between the Energy Sector and Improvements to US 2

The energy sector in the study area relies on US 2 and the feeder road system in the initial stages of development of a facility, such as a gas well or wind turbine. Once operational, energy production has less need for road transportation. Although the natural gas industry experiences safety and operational problems on US 2, improvements to the study segment are unlikely to lead to energy sector growth. This is because the fortunes of energy businesses are driven almost entirely by market prices for energy and by the availability of energy resources (e.g., wind, oil, gas). The costs to the industry of the delays and safety problems on US 2 are negligible compared to other exploration and production costs, including the cost of travel on feeder roads.

3.5 Retail/Services

The retail and services sectors combined employ over 6,500 in the study area, or more than half the workforce. These businesses include retail stores, restaurants and bars, banks, insurance companies, and repair shops. Unlike the sectors described in the previous sections, most retail and service businesses sell their products primarily to local residents, or in the case of Havre, serve local residents plus those in surrounding communities. In previous years, many Canadians traveled to Havre for shopping which boosted local retail, but this has been curtailed by the weak Canadian dollar. This sector is therefore less of a potential economic growth engine than businesses that sell products outside the region. However, two business service providers, described below, have been identified as potential growth initiatives.

Perhaps more important to the regional economy is the movement of study area residents to do shopping, reach service providers, or reach jobs at retail and service businesses. US 2 serves as the only link between Havre, Lohman, Chinook, Zurich, Harlem, and Fort Belknap. This role of US 2 in providing regional accessibility is discussed in Section 2 and reviewed below.

Advantage Line/Call Solutions

Call Solutions, formerly Advantage Line, of Williston, North Dakota is establishing a 100-seat inbound Customer Service Center in Havre. The City received a $240,000 CDBG grant from Montana Department of Commerce in support of the project. Call Solutions also recently received training funds for eight employees.

Because of the nature of the business, Call Solutions does not ship or receive significant volumes of freight, and therefore does not depend on the highway network for goods movement. Like nearly all businesses in the study area, employees at Call Solutions travel on US 2 for their daily commute. The company relies on the US 2 study segment to provide efficient and safe access to their facility.

Broadband Internet Service

The Fort Belknap Reservation has recently submitted an application for a grant to develop and provide broadband Internet service on the Reservation. The initiative will require a $2.4 million investment and will provide nine jobs in the first two years of operation. The initiative would not benefit from improvements to the US 2 study segment.

Study Area Accessibility

US 2 plays a vital role in the regional economy by providing the only link between the communities in the study area. The movement of Fort Belknap residents to and from the retail and service businesses in Harlem contributes to the relatively high traffic volumes on that segment. As described in Section 2, Havre is the largest trade center in north-central Montana and as such, is the study area hub for service sector industries and larger retail outlets. Residents in Fort Belknap, Harlem, Chinook, and other communities travel to Havre on the study segment in order to access business and personal services that are not available closer to their homes. Less frequently, these same residents use US 2 to reach Great Falls for more specialized services and retail not available in Havre.

Commuters on US 2 to Havre report that the mix of vehicles can contribute to occasional delays and sometimes unpredictable travel times, particularly in the summer months. Commuters and shoppers traveling to Havre, Chinook, Harlem, and Fort Belknap also complain of unsafe conditions on the study segment.

Summary of Relationship Between the Retail/Services Sector and Improvements to US 2

The economic health of the study area retail and service businesses is determined largely by the wealth generated by other sectors, and also by the Canadian dollar exchange rate. Although these businesses depend on a safe and reliable US 2 to transport patrons and employees, most are unlikely to expand operations as a result of improvements to the study segment.

While improvements to US 2 may not be justified on the basis of supporting business expansion in the retail and service sectors, a well-functioning US 2 is necessary to support the daily movement of study area residents to do shopping, reach service providers, or commute to jobs at retail and service businesses. US 2 serves as the only link between Havre, Lohman, Chinook, Zurich, Harlem, and Fort Belknap. As discussed in Section 2.2, economic data suggest that the communities in the study area form a hierarchy, with Havre acting as a regional trade center. An analysis of location quotients for industries indicates that many services, such as health, social services, and real estate, are not extensive enough in Blaine County to meet local demand, forcing residents to travel to Havre or Great Falls in order to purchase these services. For these reasons, a well-functioning US 2 is critical to sustaining the regional economic activity and movements in the study area associated with this spatial hierarchy.

3.6 Public Sector

Interviews with civic and business leaders identified several government activities in the study area that rely on US 2 and may benefit from US 2 improvements.

US Border Patrol

The regional headquarters of the US Border Patrol is located in Havre, overseeing operations in Montana, Idaho, Utah, and Wyoming. Following the events of September 11, the facility added 20 additional employees. The Patrol now has 40 employees based in Havre and expects to have a large and growing presence in the area. The unit depends on good road infrastructure in order to access ports of entry and conduct surveillance activities. The Border Patrol reports that the region's narrow two-lane highways and lack of passing lanes sometimes hamper emergency response. Improvement to the study segment that allows higher travel speeds would benefit Border Patrol mobility. However, as a public agency, the size and economic impact of the Border Patrol is determined by security needs and government funding, and is unlikely to change as a result of US 2 improvements. Growth of the Border Patrol unit would likely result in more vehicles on the US 2 segment.

Montana Air National Guard Training Facility

This proposed 15-square-mile facility would provide combat training for the Montana Air National Guard. Located approximately 40 miles south of the Fort Belknap community on the Fort Belknap Reservation, it will be largely staffed by Native Americans. Construction of this $10 million dollar facility will entail considerable trucking of materials between Great Falls and Fort Belknap, along Highways 87, 2, and 66. During its expected operation lifetime, the facility would generate an estimated $1 million per year in income (employment and lease). The site would be accessible from both the north and south. Most travel associated with the site would be to and from Great Falls; some of these vehicles would use US 2 to reach the site, though the expected traffic impact is currently unknown. The growth and economic impact of this facility would not change as a result of US 2 improvements.

Education

Educational institutions in the study area include Montana State University-Northern and Fort Belknap College. MSU-Northern, located in Havre with 1,451 students, is particularly valuable to the study area as a source of labor trained in a variety of technical fields. The university has reported difficulty recruiting new faculty because of the poor access to the area. More so than the condition of US 2, the limited commercial air service in Havre is a negative factor in attracting faculty, as is the distance to Great Falls. Many MSU-Northern students travel on US 2 to reach the campus, and the university's mission of providing higher education to the people of north-central Montana depends on the reliability and safety of the highway. There is anecdotal evidence that some Montana students from the eastern portion of the Hi-Line choose North Dakota colleges over MSU-Northern because of the difficulty reaching Havre. However, although the university clearly has a major economic impact on the study area, as a public institution its viability and impact would not change significantly as a result of US 2 improvements.

Summary of Relationship Between Public Sector Initiatives and Improvements to US 2

Educational and defense-related activities have a significant impact on the study area economy. These institutions and agencies rely on US 2 for the safe and reliable movement of employees and students. Because they are government funded activities to serve public needs, they are unlikely to expand or generate more economic benefits for the study area as a result of US 2 improvements. However, safety and operational improvements such as additional passing zones, wider shoulders, and improved clear zone should improve emergency response time and therefore benefit defense-related activities such as the Border Patrol.

3.7 Factors Affecting Pass-Through Traffic

There is anecdotal evidence that the condition of US 2 encourages some motorists crossing the state to use Interstates 90 and 94 rather than driving the Hi-Line, even if US 2 would offer the shortest route. Some claim that improving US 2 across the entire state would increase traffic volumes on the US 2 study segment and provide associated economic benefits. Vehicles that might potentially divert to an improved US 2 include those traveling between Midwestern cities and Glacier National Park or the Pacific Northwest.

Because the US 2 study segment makes up only 45 miles of the total 449 miles from the North Dakota border to Glacier National Park, it is unlikely that study segment improvements alone would cause a significant number of motorists to divert to the Hi-Line.

Table 20 shows the driving distance between points east and west of the US 2 study segment, with the shortest distance for each pair in bold. The shortest route to Glacier National Park for travelers from Duluth, Minneapolis, and Chicago (and all other Midwestern cities east and north of Chicago) would traverse US 2 across Montana. However, other Interstate and state highway routes are only slightly longer (less than two percent longer in some cases), so the US 2 route does not offer a major distance savings. With multiple route choices of roughly equal distance, most drivers are likely to select routes based on factors like amenities and attractions along the way, rather than distance alone.

Many long-distance drivers follow routes provided by travel services like AAA. When asked to suggest a route from Minneapolis to Glacier National Park, AAA provided us with a route that follows US 200 through Lewistown, claiming this to be the shortest route. Our analysis shows that the US 2 route to Glacier Park is actually shorter. AAA was unable to provide us with a detailed description of how their employees select recommended routes.

If there is an increase in through-traffic volumes on US 2, this would likely result in increased development of traveler-serving businesses (motels, gas stations, restaurants, etc.). More pass-through travelers would also bring more potential visitors to local tourist attractions. And an increase in truck traffic might lead to a slight drop in truck freight rates for study area businesses. Note that from an economic perspective, expansion of traveler-serving businesses from diverted traffic would not be considered new economic growth but rather a transfer of benefits from another corridor within Montana.

Table 20: Comparison of Route Distances Across Montana

Origin	Destination	Via US 2 only	Via I-94 to Jamestown, US 52 to Minot, then US 2	Via I-94 and US 200 through Lewistown	Via I-90 and/or I-94
Minneapolis	East Glacier	N/a	**1102 mi**	1122 mi	1125 mi
Minneapolis	Seattle	N/a	1700 mi	**1611 mi**	1661 mi
Duluth	East Glacier	**1075 mi**	1120 mi	1146 mi	1290 mi
Duluth	Seattle	1743 mi	1908 mi	**1729 mi**	1739 mi
Chicago	East Glacier	N/a	**1506 mi**	1536 mi	1662 mi
Chicago	Seattle	N/a	2173 mi	2151 mi	**2106 mi**

4 SUMMARY AND CONCLUSION

4.1 Summary of Initiatives

Table 21 summarizes the current and planned initiatives in the study area, illustrating that most initiatives have a high reliance on the highway system and many initiatives have a need for highway safety and operational improvements.

Table 21: Summary of Current Initiatives and Transportation Linkages

Initiative	Current Economic Impact	Reliance on Highway System	Current Transportation Needs	Potential for Business Expansion
Tourism				
Havre Beneath the Streets	10,000 visitors per year	High	None	Moderate
Bear Paw Battleground	6,300 visitors per year	High	Signage on U.S. 2	High
Bison Indian Burial Site	1,700 visitors per year	High	Signage on U.S. 2	High
Fort Assiniboine	500-1,000 visitors per year	High	None	High
Heritage Center	unknown -- small	High	None	Moderate
Beavercreek Park	500 visitors per day at peak	High	None	Moderate
Fort Belknap Reservation	1,200 visitors per year	High	Signage on U.S. 2	High
Blaine Co Wildlife Museum	Planning Stages	High	Unknown	Moderate
Dinosaur Digs	Planning Stages	High	Unknown	Moderate
Lewis and Clark Trail	unknown -- small	High	Unknown	Moderate
Agriculture				
Wheat	$71.7 M in sales (1997)	Moderate	Safe roadways to reach elevators	Low
Higher Value Crops	unknown -- small	High	Safe roadways to reach markets	Moderate-High
Cattle	$28.9 M in sales (1997)	High	Reduced truck shipping costs	Low
Manufacturing				
Big Equipment Co.	$3 million in sales; 9 employees	High	Wider road, safety improvements to facilitate oversize loads	Moderate
Biodiesel facility	Planning Stages; projected staff of 20	High	Adequate capacity and safety to transport seeds and oils	High
GE Locomotive Maintenance	50 employees	High	Reduced truck shipping costs	Low-moderate
Enell	6 employees	High	Better US 2 reliability during inclement weather	Moderate
Energy				
Natural Gas Extraction	unknown -- large	High	Safety and operational improvements to US 2	Low
Wind Power	Planning Stages; projected staff of 5	Moderate	Unknown	Moderate
Retail and Services				
Advantage Line/Call Solutions	8 employees	Moderate	None	Moderate
Broadband Internet Service	Planning Stages; projected staff of 9	Low	None	Low
Shopping and Services (generally)	over 5,000 employees	Moderate	Safety and operational improvements to US 2	Low
Public Sector				
US Border Patrol	40 employees	High	Safety and operational improvements to US 2	Moderate
Montana Air National Guard Training Facility	$10 million development cost	Moderate	Unknown	Low
MSU-Northern	248 emp, 1451 students	Moderate	Safety and operational improvements to US 2	Low

We also reviewed failed past initiatives to assess how the condition of US 2 might have contributed to a lack of business establishment or expansion. Table 22 shows that while some initiatives reported being constrained by transportation factors such as the distance to market and high freight rates, no initiative failed as a result of the condition of US 2.

Table 22: Summary of Failed Initiatives and Transportation Linkages

Initiative	Economic Impact	Reliance on Highway System	Primary Reasons for Failure	Transportation Constraints	Condition of U.S. 2 as a Reason for Failure
Premium Pork	$4.2 m development cost; 31 jobs	High	Inability to secure adequate investment capital	Unknown	No
Alfaalfa Processing Plant	20 jobs	High	Lack of operating capital	Unknown	No
Montana Dairy Corporation	n/a	High	Lack of operating capital	Distance inhibits ability of firm to develop new markets	No
BioGold Composites	$20 m development cost; 70 jobs	High	Inability to secure sufficient capital and lack of demand for product	Unknown	No
Wildcat Manufacturing	n/a	High	Decline in drilling activity in Northcentral Montana	High cost of transporting goods to market	No
Woods Power Grip	$ 7 m annual sales; 85 employees	High	Relocated to Laurel over Havre due to employee amenities offered (in nearby Billings) and availability of a facility	Better freight rates available in Laurel	No
Water Chef	$1.5 m development costs; 99 jobs	High	Inability to secure customers and lack of adequate operating capital	High transportation costs due to distance to markets	No

Table 23 summarizes the potential for each major sector to benefit from transportation investments. The tourism, agriculture, and manufacturing sectors appear to need safety and operational improvements to US 2 in order to maintain viability and preserve the potential for future economic growth. Based on our review of the economic growth initiatives, none of the sectors are likely to experience economic growth as a result of major capacity improvements to US 2.

Table 23: Summary of Potential for Sectors to Benefit from Transportation Improvements

Sector	Need for US 2 Safety and/or Operational Improvements to Maintain Sector Viability	Potential for Economic Growth as a Result of Major Capacity Improvements to US 2
Tourism	High	Low
Agriculture	High	Low
Manufacturing	High	Low
Energy	Moderate	Low
Retail and Services	Moderate	Low
Public Sector	Low	Low

4.2 Business Location Factors and Study Area Potential

The assessment summarized in the previous section suggests that there are few current and past economic development initiatives that would experience growth as a result of major capacity improvements to the

relevant US 2 segment. It is also possible that, in the future, new businesses might locate in the study area or existing businesses might relocate there from elsewhere. There is a perception by study area residents that US 2 improvements will foster this business attraction.

A variety of factors affect a firm's decision to locate in a particular region. Studies have sought to identify and rank these factors, and found that the most important factors are the availability of skilled labor, market access, and favorable labor costs. Below we discuss each possible business location factor in terms of its importance and map those factors to conditions in the study area.

Labor Factors

- Availability of Skilled Labor – The ability to draw on skilled labor can be a key determinant in a firm's location decision. The study area benefits from the proximity of the MSU-Northern campus, which provides a trained labor pool for a range of firms and industries interested in locating in the region.
- Favorable Labor Costs – Taking advantage of favorable labor costs is a factor that has caused many firms to relocate within the United States and to foreign countries. The study area benefits from favorable labor costs relative to much of the U.S.

Transportation Factors

- Market Access – Distance to market is an important location factor since greater distance results in increased transportation costs and lower profitability. The study area is located far from major markets. This is particularly the case for processed agricultural goods and manufactured products, with major markets located on the eastern and western coasts. The closest large metropolitan areas are Salt Lake City (685 miles), Denver (845 miles), and Minneapolis (927 miles).
- Access to Transportation Facilities – As discussed in Section 1.1, a number of studies have concluded that transportation facility access ranks low as a factor for business location. The study area has access to a two-lane highway that is currently not capacity constrained.

Physical and Community Factors

- Access to Raw Materials – Access to raw materials has traditionally been an important factor in business location. Although recent technological trends have changed many of the established production practices, access to raw materials is still important for some businesses. The study area has abundant sources of several types of raw materials, notably grains, cattle, natural gas, and some minerals.
- Facility and Land Availability – For any firm engaged in a location decision process, the availability of a suitable facility and/or land is a key determinant. The study area benefits from numerous available sites for commercial development. The region also benefits from the role that the Bear Paw Development Corporation plays in coordinating economic development planning and project implementation, including identification of suitable sites for businesses.

Availability of Employee Amenities

- Quality of life issues have become increasingly important in business location decisions. The extent to which an area can offer employees amenities affects an area's attractiveness. The study area offers amenities such as good schools, a safe environment, and outdoor recreation opportunities, but lacks

many of the entertainment, recreation, and retail amenities present in larger urban areas. The northern Montana climate may also deter potential new businesses.

Financial/Economic Factors

- Tax Rates – Recent industrial location research suggests the emergence of new factors such as tax rates. Industries are becoming more footloose – less dependent on raw materials and infrastructure, and thus able to choose among locations based on factors like tax rates. Businesses considering the study area can access a variety of statewide tax incentives that include corporation tax incentives, natural resource tax incentives and property tax incentives. In addition, Montana has no sales tax.
- Availability of Capital – Given the flexible nature of accessing capital, this factor is less important than more constraining factors such as market access and the availability of skilled labor. Nevertheless, the availability of local capital remains a factor in business location. Although the Bear Paw Development Corporation plays a key role in providing business loans, supported by the state's 1991 Microbusiness Finance Act, the failure of several initiatives due to a lack of capital suggests that this is a limiting factor in the study area.
- Agglomeration Potential – The possibility for businesses to benefit from the presence of similar businesses, as well as from backward and forward linked industries, is known as an area's agglomeration potential. Although the study area enjoys a strong base in agriculture and related industries, because of its small urban areas and relatively few businesses, it does not offer significant additional agglomeration potential.

Table 24 summarizes business location factors grouped by their importance to businesses (as reported in various national studies) and the conditions in the study area with respect to those factors. While this does not constitute a rigorous assessment of business location factors for the region, it does illustrate the importance of non-transportation factors in business location. The study area ranks favorably for many of the important factors, but it lacks some key elements such as market access, agglomeration potential, and availability of employee amenities. Therefore, we believe that major capacity improvements to the US 2 segment alone are unlikely to cause significant new business attraction to the study area.

Table 24: Business Location Factors and Study Area Conditions

Importance	Location Factor	Conditions in Study Area
High	Availability of Skilled Labor	Good
	Market Access	Poor
	Favorable Labor Costs	Good
Moderate	Access to Raw Materials	Moderate
	Availability of Employee Amenities	Moderate
	Agglomeration Potential	Poor
	Tax Rates	Good
	Facility/Land Availability	Good
Low	Access to Transportation Facilities	Moderate
	Availability of Capital	Poor

4.3 Conclusions

Predicting how transportation investments will affect regional economic development is difficult in any region. This study assesses the potential economic development benefits of improvements to the Havre to Fort Belknap segment of US 2, focusing on major highway capacity improvements. The assessment methodology depends on first identifying the initiatives that could generate economic growth and their potential economic benefits, then considering how each initiative relies on improvements to US 2. We conducted a site visit and extensive interviews to collect this information. And, although detailed data on the economic benefits associated with specific development initiatives were not available, based on the information that was collected we were able to assess qualitatively the relationship between the region's economic development strategy (as defined by the initiatives) and improvements to US 2.

Analysis of the relationship between economic growth and transportation improvements indicates that while most economic development initiatives demonstrate a high reliance on the highway system, there are very few initiatives whose implementation and/or business expansion would benefit from major capacity improvements to this section of US 2. Furthermore, a review of failed initiatives suggests that while transportation factors such as the distance to market and high freight rates have contributed to the lack of success of these ventures, the condition of the US 2 study segment has not been a reason for business failure. Therefore, we conclude that major capacity improvements, such as additional through lanes, to the US 2 segment on their own are unlikely to generate significant regional economic development benefits.

Although there does not appear to be a strong linkage between the region's economic development initiatives and major capacity improvements to US 2, it is clear that US 2 plays a vital role in sustaining the region's economy, and that much of the business activity in the area relies on the US 2 segment to carry goods and people. As such, investments that improve the operation and safety of US 2 (such as wider shoulders, improved intersections, new turning lanes, and improved signage) appear to be needed to sustain the region's economy and ensure the potential for future economic growth.

APPENDIX: LIST OF INTERVIEWEES

General Economic Development

Paul Tuss and Craig Erickson, Bear Paw Development Corporation
Randy Hanson, Montana Department of Commerce
Debbie Vandeberg, Havre Chamber of Commerce
Patrick Conway, Hill County
Victor Miller, Don Swensen, and Art Kleinjan, Blaine County
Caroline Brown and John Healy, Fort Belknap Indian Community
Phil Brooks, Montana Department of Labor and Industry
Deborah Hedstrom, Independence Bank
Pam Harada, Havre Job Service
Bob Sivertsen, US 2 Association

Transportation

Ron Coleman, Port of Turner
Don Swenson, Blaine County
Jerry Otto, Hill County
Dan Rice, TranSystems LLC
Gene See and Gus Melonas, BNSF

Tourism

Curtis Galvez, Bear Paw Battlefield
Anna Brumley, Bison Indian Burial Archaeological Site (Wahkpa Chu'gn)
Bernie and Donna Golie, Beaver Creek Park
Frank DeRosa, Havre Beneath the Streets
Gary Wilson, Fort Assiniboine
Sherilee Smith, Fort Benton
Dr. Norma Nickerson and Thale Dillon, Institute for Tourism and Recreation Research
Victor Bjornberg, Travel Montana

Agriculture

Clay Sewell, MSU Extension – Hill County
Mike Schuldt, MSU Extension – Blaine County
Mike Zook, Hill County USDA
Jack Davies, rancher (Blaine County)

Manufacturing

Ron Harmon, Big Equipment Company
Marty Hass, Enell

Energy

Leo Heath, EnCana
Gerhard Drake, Ocean Energy Resources

Gorm Scarpholt, Sangel

Public Sector

Mark Kemp, US Border Patrol

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June 2003

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Addendum to Final Document

Responses to comments submitted by FHWA:

Comment 1: ICF principal report authors' qualifications missing.

Response: ***Sergio Ostria, M.A., Economics from The George Washington University, with fifteen years of experience in transportation economics, finance, and transportation planning and policy analysis.***

Jeffrey Ang-Olson, Master of City Planning and Master of Transportation Engineering from the University of California, Berkeley, with eight years of experience in the areas of passenger and freight transportation and associated economic, environmental, and energy issues.

Sakina Khan, Master of City Planning from the Massachusetts Institute of Technology, with three years in transportation planning, economic and community development.

Comment 2: Reference is made to the "fairly high" and "relatively high" level of service on US 2. The report does not explicitly state what the LOS is for this segment of US 2. The explanation of LOS (page 3) should include the significance of A B C etc.

Response: ***Documentation for Page 3, Footnote 4. Refer also to attached section 9.1, Capacity Analysis – Highway Segments of US 2, from Preliminary Traffic Engineering and Geometrics Report dated December 2002.***

9.0 Capacity Analysis

9.1 Highway Segments

The Highway Capacity Manual (HCM) bases the capacity analysis for two-lane highways on average travel speed, percent time delay, and capacity utilization. Average travel speed is calculated for the entire segment and reflects the speeds of both directions of travel. Percent time delay is a measure of platooning on the roadway, and is impacted by the number of passing zones, range in travel speeds, and distribution of vehicle types. Capacity utilization measures the ratio of the demand flow rate to the capacity of the facility. The relationship between the volume and capacity of a facility is reported through level-of-service (LOS). LOS is a qualitative measure that ranges from LOS A, describing free-flow conditions, to LOS F, where the travel demand equals or exceeds the capacity.

The Montana Road Design Manual recommends that highways be designed to provide a minimum level of service dependent on the type of facility. For a rural non-Interstate NHS route in level or rolling terrain, the minimum recommended design level of service is B.

The general characteristics of the LOS categories for a rural, two-lane highway, as defined in the Highway Capacity Manual, are described below:

- Level of Service A – Average speeds approach 112 kph (70 mph). Motorists are able to drive at their desired speed. Passing demand is well below passing capacity. No platoons of three or more vehicles are observed.

- Level of Service B – Average speeds approach 105 kph (65 mph). Passing demand needed to maintain desired speeds becomes significant. Drivers are delayed up to 45 percent of the time.

- Level of Service C – Average speeds exceed 96 kph (60 mph). Passing demand exceeds capacity. Drivers are delayed up to 60 percent of the time.

- Level of Service D – Traffic flow becomes somewhat unstable. Average speeds exceed 96 kph (60 mph). Passing demand exceeds capacity. Drivers are delayed up to 60 percent of the time.

- Level of Service E – Average speeds drop below 80 kph (50 mph) under ideal conditions. Passing is almost impossible and platooning becomes intense. Drivers are delayed more than 75 percent of the time.

- Level of Service F – Traffic flow is heavily congested with demand exceeding capacity. Passing demand is high yet no opportunities are available.

The overall geometrics of the corridor also impact traffic operations. Grades, lane widths, shoulder widths, percent of passing zones are all inputs to the analysis. Traffic flow characteristics are also considered in the analysis by entering peak hour volumes, percentage traveling each direction, and percentage of heavy vehicles.

An operational analysis of the highway under existing conditions was performed using the computer software program HCS2000.

Table 18 summarizes the results of the analysis for 2002, 2007, and 2027 traffic volumes under existing roadway conditions. The analysis shows that the highway will operate at an acceptable level-of-service through 2027. A drop in service to LOS C may be experienced through the Chinook Urban segment due to lack of passing opportunities and lower speed limits as characterized by the urban nature of the roadway. This can be mitigated by providing passing zones for drivers as they exit the city limits east and west of Chinook.

Table 18. Existing and Future PM Peak Hour Roadway LOS

		LOS		
	Segment	**2002**	**2007**	**2027**
1	Havre East Suburban	B	B	B
2	Havre East Rural	B	B	B
3	Lohman	A	A	B
4	Chinook Urban	B	B	C
5	Zurich	A	A	B
6	Harlem West Rural	A	A	B
7	Harlem MT 66	B	B	B

Source: Analysis by David Evans and Associates, Inc with traffic volumes by MDT.

LOS C would be experienced in the design year within the area of the US 2 corridor between Harlem and MT 66 (Segment 7) if the average annual growth rate between 2007 and 2027 is 2.8%, versus the already aggressive 2% estimated by MDT. This is equal to approximately 25 more vehicles in the design hour or 200 vehicles per day. A drop in service to LOS C would be experienced in 2027 between Havre and Lohman (Segment 2) if the average annual growth rate is 1.6%, versus the aggressive 1% provided by MDT. This is equal to about 35 additional vehicles in the design hour or 300 vehicles per day. However, the areas between Lohman and Chinook (Segment 3) and west of Harlem (Segment 6) would need to experience average growth rates over twice the values assumed for this project (2.5% and 4.0%, respectively). This would require additional traffic volumes of approximately 1,100 vehicles per day in Segment 3 and 1,250 vehicles per day in Segment 6.

9.2 Intersection Analysis

The HCM bases level of service calculations for intersections on the concept of control delay. For a two-way stop-controlled intersection, the delay to side-street movements is generally controlled by the availability of gaps in the major street's traffic. The amount of delay experienced by the side-street and main-line left turn movements is used to determine the Level of Service. The HCS 2000 software was used to analyze the key corridor intersections. **Table 19** summarizes the results of the LOS analysis.

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The following text, which was used as an attachment to the first Addendum of the Final Existing Economic Conditions Report, has been revised. The original text, taken from the *Preliminary Traffic Engineering and Geometrics Report* dated December 2002, reflected figures from the 1994 Highway Capacity Manual. The text has been revised in this addendum to reflect figures from the 2000 Highway Capacity Manual.

9.0 Capacity Analysis

9.1 Highway Segments

The Highway Capacity Manual (HCM) bases the capacity analysis for two-lane highways on average travel speed, percent time delay, and capacity utilization. Average travel speed is calculated for the entire segment and reflects the speeds of both directions of travel. Percent time delay is a measure of platooning on the roadway, and is impacted by the number of passing zones, range in travel speeds, and distribution of vehicle types. Capacity utilization measures the ratio of the demand flow rate to the capacity of the facility. The relationship between the volume and capacity of a facility is reported through level-of-service (LOS). LOS is a qualitative measure that ranges from LOS A, describing free-flow conditions, to LOS F, where the travel demand equals or exceeds the capacity.

The Montana Road Design Manual recommends that highways be designed to provide a minimum level of service dependent on the type of facility. For a rural non-Interstate NHS route in level or rolling terrain, the minimum recommended design level of service is B.

The general characteristics of the LOS categories for a rural, two-lane highway, as defined in the Highway Capacity Manual, are described below:

- Level of Service A – Average speeds approach 112 km/h (70 mph). Motorists are able to drive at their desired speed. Passing demand is well below passing capacity. No platoons of three or more vehicles are observed. Drivers are delayed up to 35 percent of the time.

- Level of Service B – Average speeds approach 105 km/h (65 mph). Passing demand needed to maintain desired speeds becomes significant. Drivers are delayed up to 50 percent of the time.

- Level of Service C – Average speeds exceed 96 km/h (60 mph). Passing demand exceeds capacity. Drivers are delayed up to 65 percent of the time.

- Level of Service D – Traffic flow becomes somewhat unstable. Average speeds can be maintained at 88 km/h (55 mph). Passing demand exceeds capacity. Drivers are delayed up to 80 percent of the time.

- Level of Service E – Average speeds drop below 88 km/h (55 mph) under ideal conditions. Passing is almost impossible and platooning becomes intense. Drivers are delayed more than 80 percent of the time.

- Level of Service F – Traffic flow is heavily congested with demand exceeding capacity. Passing demand is high yet no opportunities are available. Drivers are delayed the entire time.

The overall geometrics of the corridor also impact traffic operations. Grades, lane widths, shoulder widths, percent of passing zones are all inputs to the analysis. Traffic flow characteristics are also considered in the analysis by entering peak hour volumes, percentage traveling each direction, and percentage of heavy vehicles.

An operational analysis of the highway under existing conditions was performed using the computer software program HCS2000.

Table 18 summarizes the results of the analysis for 2002, 2007, and 2027 traffic volumes under existing roadway conditions. The analysis shows that the highway will operate at an acceptable level-of-service through 2027. A drop in service to LOS C may be experienced through the Chinook Urban segment due to lack of passing opportunities and lower speed limits as characterized by the urban nature of the roadway. This can be mitigated by providing passing zones for drivers as they exit the city limits east and west of Chinook.

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3	Lohman	A	A	B
4	Chinook Urban	B	B	C
5	Zurich	A	A	B
6	Harlem West Rural	A	A	B
7	Harlem MT 66	B	B	B

Source: Analysis by David Evans and Associates, Inc with traffic volumes by MDT.

LOS C would be experienced in the design year within the area of the US 2 corridor between Harlem and MT 66 (Segment 7) if the average annual growth rate between 2007 and 2027 is 2.8%, versus the already aggressive 2% estimated by MDT. This is equal to approximately 25 more vehicles in the design hour or 200 vehicles per day. A drop in service to LOS C would be experienced in 2027 between Havre and Lohman (Segment 2) if the average annual growth rate is 1.6%, versus the aggressive 1% provided by MDT. This is equal to about 35 additional vehicles in the design hour or 300 vehicles per day. However, the areas between Lohman and Chinook (Segment 3) and west of Harlem (Segment 6) would need to experience average growth rates over twice the values assumed for this project (2.5% and 4.0%, respectively). This would require additional traffic volumes of approximately 1,100 vehicles per day in Segment 3 and 1,250 vehicles per day in Segment 6.

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This addendum supplements the US 2, Havre to Fort Belknap *EIS Existing Economic Conditions Report, Final Document*, dated June 2003. Two previous addenda were issued. "Addendum to Final Document" dated June 2003 contains information on report author qualifications and Section 9.1, Capacity Analysis from the *Preliminary Traffic Engineering and Geometrics Report* written for this project. "Addendum 2 to Final Document" dated July 2003 contains a revised Section 9.1 from the *Preliminary Traffic Engineering and Geometrics Report* using figures from the 2000 Highway Capacity Manual.

The Existing Economic Conditions Report of June 2003 describes economic growth initiatives in the study area, describes how each initiative relies on the transportation system, and assesses the relationship between the initiatives and improvements to the US 2 study segment. Since the completion of that report, a number of new economic growth initiatives have emerged and some existing initiatives have experienced changes. This addendum updates the Existing Economic Conditions Report by describing the new or modified initiatives and the implications for the conclusions of the report.

Tourism

State economic development experts have noted that additional hotel rooms are needed in the study area in order to capture a significant increase in tourists. Several initiatives are under consideration that would expand lodging capacity in Havre. The Best Western Great Northern Inn in Havre plans to add a new wing with 52 additional rooms to the existing facility. The hotel expects to increase employment by 15 staff as a result. The addition is expected to be completed by spring 2005. There have also been inquiries by a hotel developer regarding construction of a new hotel on the western side of Havre. This facility would likely have 40 to 60 rooms. If these expansions occur, they will help to strengthen the tourism industry in the study segment. Increases in traffic volumes on the study segment resulting from tourism initiatives have previously been accounted for in the travel forecasts.[1] The hotel expansion plans do not appear to be dependent on major capacity expansion to the US 2 segment.

As discussed in the Existing Economic Conditions Report, the Bear Paw Battlefield is conducting a feasibility study of visitor facilities at the Battlefield. The current proposal is to construct a small building (approximately 3,000 square feet) that would serve two purposes: (1) to give visitors an orientation before they start on the walking trails (with plans for a small audio-visual room) and (2) to facilitate having a ranger on site to protect the resource, give tours and answer questions (the ranger currently works out of an office at Chinook and there is no onsite ranger at the Battlefield). There is no firm cost estimate for the proposed facility yet, but NPS staff note that a facility of this size typically costs around $1 million for construction. The success of the new visitor center is not dependent on transportation improvements. However, NPS staff feel that visitor safety and the overall quality of the visitor experience is dependent on improvements such as passing lanes or additional travel lanes on US 2.

A new initiative for a visitor center in Havre is also being considered. Bear Paw Development Corporation is leading the effort, in partnership with the Chamber of Commerce, Hill County and City of Havre. The location of the proposed center is on US 2, opposite the Holiday Village Mall, and its target market is tourists traveling to and from Glacier Park. The center would provide visitors with information on the area's attractions through the use of various formats, including interpretive displays. It is hoped that the center would complement facilities at Bear Paw Battlefield, and would ultimately become an origination point for tours of the area. Plans, however, are in the early stage and there are no facility size or construction cost estimates yet. Bear Paw Development Corporation staff have indicated that the development of the center is not dependent on improvements to US 2.

Agriculture

As noted in the Existing Economic Conditions Report, the agricultural sector is an important source of employment and income in the study area, which relies heavily on US 2 to transport crops, livestock and supplies. As also noted, there are a number of trends and opportunities affecting this sector, including the recent consolidation of grain elevators and the potential growth in production of higher-value varieties of wheat. There are no new additional initiatives in this sector to be considered, and thus the conclusions

[1] See "MDT Travel Forecasts Reasonableness Check – Additional Initiatives," Memorandum, David Evans and Associates, June 1, 2004.

presented in the Report regarding the relationship between the agriculture sector and improvements to US 2 remain unchanged.

Recreation

There are two recreational initiatives in the planning stage. The City of Havre is exploring the feasibility of building a publicly owned multi-purpose events center, and has partnered with Hill County, Bear Paw Development Corporation, and the Chamber of Commerce to determine this feasibility. The center would seat approximately 4,000 to 5,000 persons, and is intended to host a range of spectator-oriented events, from athletic tournaments to agriculture-related events to entertainment and educational opportunities. The center may include several thousand square feet of space devoted to rooms that can be subdivided for smaller meetings and events. This initiative has the potential to generate significant economic benefits for the community and surrounding area. Five locations are currently being considered, but the study has not yet recommended a specific site. One of the locations would be in proximity to the golf course discussed below. It has been noted by the Chamber of Commerce that the facility would not be dependent on improvements to US 2.

A proposed golf course and hotel development is also being considered, though this initiative is in the very early planning stage and its development is not yet confirmed. The facility would be located east of Havre, adjacent to US 2, and directly across the highway from the Circle Inn Motel. The amenities would include an 18-hole golf course, an upscale clubhouse, a gas station and convenience store, housing, a hotel with 100-180 rooms and a restaurant, and a 40-50 unit assisted living facility for seniors. The development would access US 2 directly; should the initiative be implemented, there may be substantial increases in turning movements on US 2 east of Havre. The golf course and hotel development would benefit from operational and safety improvements to the US 2 segment, including the addition of a turning lane in the western end of the segment. This initiative does not depend on major capacity additions to the US 2 segment.

Retail/Services

The recent increase in occupancy at the Holiday Village Mall on the west side of Havre means that this facility should now be considered as a key component of the study area's retail sector. The mall had a low occupancy for many years; however, following a change in ownership, the mall attracted two anchor tenants (Big R and Bi-Mart) in the fall of 2003, and additional tenants have since followed. There are now approximately 30 stores that employ a total of approximately 200 to 240 staff; only a few small stores remain vacant, and a new Dollar Superstore (7,700 square feet) is expected to open in mid-August 2004. Mall management notes that there are no plans to expand the size of the mall and that US 2 adequately supports mall operations, both in terms of incoming and outgoing shipments and in terms of customer accessibility (with customers coming from the Hi-Line as well as from Canada).

In terms of the mall's two anchor stores, Bi-Mart specializes in retail discount sales, occupies approximately 31,000 square feet and employs between 30 and 35 staff. Bi-Mart has a catchment area of 75 miles (with customers coming from as far as Great Falls, Lewiston, Malta, and Shelby), and already has an increasing number of customers from Canada. While the store projects average growth in sales, there are no plans to expand operations. Bi-Mart staff noted that the store would not expect to see a noticeable increase in customer attraction/business even with improvements to US 2.

Big R is a retail center that sells a full line of goods, including hardware, clothing, and electrical items. It relocated to the mall from a site downtown because of a need for additional space. The center currently occupies 36,000 square feet and employs 32 staff. Big R mainly attracts customers from the Hi-Line

(from Shelby to Williston, North Dakota). A small percentage (less than 5 percent) of customers come from Canada, and this volume is very dependent on the exchange rate. Big R plans to open a distribution center in the next year in the basement of its Havre store. This distribution center would replace a facility in Great Falls and would supply stores in Jamestown, ND, and Spokane, WA, relying heavily on US 2 to support distribution. The center would employ 6 people onsite in addition to supporting truck employment. Big R staff noted that US 2 does adequately support current and planned operations, though an improved US 2 might be more attractive for truckers. Nevertheless, it is expected that Big R will proceed with its plans for the new distribution center regardless of improvements to US 2.

Retail sales in the study area have been helped by a stronger Canadian dollar. During the early 1990s, a strong Canadian dollar led to many Canadian shoppers patronizing Havre stores. The Canadian dollar then weakened substantially, hitting a low in 2002 of less than $0.65 US per Canadian dollar. The Canadian dollar strengthened substantially in 2003 and currently stands at $0.76 US. Most Canadian shoppers in Havre do not travel on the US 2 study segment, so improvements to the study segment are unlikely the influence this pattern.

Public Sector

As discussed in the Existing Economic Conditions Report, Northern Montana Health Care (NMHC) is one of the ten largest employers in Havre with 650 employees. Facilities include a hospital, nursing home, and retirement center. The service area extends from Malta to Chester and is unlikely to see major shifts in population and industry, according to NHMC staff. As such, there are no plans for expansion of the health care operations, though facilities are being continually upgraded. The study segment of US 2 does support NMHC's current and planned operations in terms of patient and emergency service accessibility. However, NMHC staff have noted that an improved US 2 would improve this accessibility, especially during winter months when there are safety issues.

Additional initiatives in the public sector are also underway at MSU-Northern. Northern is establishing two-year degree programs in plumbing, electrical and carpentry, each with a capacity of 50 students. The plumbing program will start in fall 2004, the electrical program expected by 2005, followed by the carpentry program. The students in these programs will be new students to Northern. Northern is a regional school that generally attracts students from a 200-mile radius, with many of its students from Great Falls and Kalispell. Some students commute, others move to Havre and live there during the school year, and others participate in degree programs online or through distance courses. Northern is also about to start construction on a new $4 million building, which will house applied research functions. This research will be undertaken for the Montana Department of Environmental Quality (DEQ) and the U.S. Environmental Protection Agency (EPA), and entails testing on emissions, biodiesel, and other energy applications. It is anticipated that this research may ultimately be implemented in the region, and will positively impact economic development in the area. It appears though that these new programs and facilities are planned regardless of improvements to US 2.

Summary and Conclusions

The new initiatives and potential economic development activity described above suggest that the economic outlook for the study area has improved since the completion of the Existing Economic Conditions Report in June 2003. Many of these initiatives may have synergistic effects. For example, improved tourism attractions can encourage more pass-through travelers to stop, more high quality hotel rooms can encourage visitors to spend a night in the study area, and expanded retail can encourage them to shop.

As with the initiatives described in the Existing Economic Conditions Report, most of these new initiatives rely heavily on US 2 to transport patrons, employees, and supplies. Based on our review of the economic growth initiatives and interviews with local business leaders, it appears that many of the initiatives can benefit from safety and operational improvements to the study segment. It does not appear that implementation of these economic development initiatives or related economic growth is dependent on major capacity improvements to this section of US 2.